MIDDLE EAST

Gulf green reinvention begins to take shape

D ndeniably sluggish off the starting block of the low carbon revolution, the Arab Gulf is starting to catch up. One could argue that abundant natural resources – wind, hydro and vast land availability – means that Gulf nations should have spearheaded the global energy transition decades ago.

Equally, we must resist using the region as a global scapegoat. Doing so overlooks the embryonic nature of the nations – the UAE celebrates just its 48th year of independence this month – and the global investment and political narrative that long saw fossil fuels as king.

So why change an economic model that has seen skyscrapers rise from deserts and created some of the world's highest rates of GDP? For one, the region is very vulnerable to the negative impacts of climate change. Plus, Gulf energy players are not deaf to the increasingly loud talk of 'peak oil' within the next few decades (DNV GL says 2022; China National Petroleum Corporation says 2030; Wood Mackenzie says 2035; the International Energy Agency says 2040; and the US Energy Information Administration says 2050)

Whichever forecast prevails, the Gulf's historical fossil fuel-centric economic model will inevitably weaken (and its global standing with it). And so, diversifying the energy basket has emerged as a central pillar in Gulf countries' 'national visions', and they have thrown their support behind



the Paris Agreement.

Today, the region views energy through a revised prism; where fossil fuels are non-negotiable partners for energy security, not foes. Sheikh Mohammed bin Zayed, Crown Prince of Abu Dhabi, encapsulated the U-turn in energy policy in 2015, saying the UAE must celebrate when the last barrel of oil is shipped abroad.

'Market conditions mean conversations have moved from should we have renewables? to how much can we integrate? and how do we go further?' according to the Abu Dhabi-based International Renewable Energy Agency (IRENA). 'The growing adoption of renewables in the region sends a signal to the whole world about the enormous opportunities at The 1 GW Miraah solar thermal project in Oman uses solar-generated steam for enhanced oil recovery at the nearby Amal oilfield *Photo: Glasspoint Solar* hand. The current targets are entirely within reach for the Gulf Cooperation Council (GCC). The economic and social rationale for the energy transition in the GCC has never been stronger.'

For starters, Saudi Arabia came fifth in the 2019 PwC Low Carbon Economy Index, with a decarbonisation rate of 4% – especially noteworthy for the world's largest oil exporter and OPEC linchpin.

Walking the walk

For decades, the Arab Gulf has curated a reputation for aspiring to be the biggest and the best. The world's tallest building, Dubai's Burj Khalifa, is set to be overshadowed by Saudi Arabia's Jeddah Tower, when (if) it opens in 2021. This is not just a case of stacking more bricks. It's symbolic of the region's thirst for grabbing the global spotlight with ambitious projects; renewables are no different.

Against this backdrop, many fairly questioned whether the region's demanding green targets are hype or an innovative reality. For now, it appears to be the latter. Record-breaking bids in renewable energy auctions in the UAE and Saudi Arabia in 2016–2018, making solar power cost-competitive with conventional energy technologies, were a gamechanger in the region's psyche and how seriously the world took its proclamations. Since then, the list of world-firsts has grown, among many other projects (and reducing energy subsidies). In the UAE, the Emirates Water

Environmental sore spots

Blazing heat, droughts, water scarcity, flooding. The Gulf and wider region are on the frontline of climate change. NASA said the drought that began in 1998 in the eastern Mediterranean Levant region is likely the worst of the past nine centuries, while the World Bank said the Middle East and North Africa (MENA) region has the greatest expected economic losses from climate-related water scarcity – a staggering 6%–14% of GDP by 2050.

There's also the challenge of too much water. The region is among the most vulnerable places on earth to rising sea levels with the World Bank forecasting a 0.5 m rise by 2099, putting low-lying coastal areas in Qatar, UAE, Kuwait and others at particular risk.

Clearly, Gulf energy producers' efforts to accelerate low carbon growth – the best chance of mitigating the severity of these threats – cannot be quick enough.

Beyond Arabia

The Gulf's green ambitions are not confined to Arabia; in part due to the region's aim to broaden its global influence. For example, in October, ACWA Power, operator of power generation and water desalination facilities in Saudi Arabia, signed a power purchase agreement with the government of Egypt to develop, finance, construct and operate the 200 MW Kom Ombo solar PV plant. ACWA was also awarded two 125 MW solar PV projects by the

and Electricity Company said Noor Abu Dhabi is the world's largest single-site solar project with a capacity of 1,177 MW. The \$860mn solar plant started operations in June, using 3.2mn solar panels across 8 km² to reduce carbon dioxide emissions by 1mn tonnes per year. The joint venture between the Abu Dhabi government and a consortium of Japan's Marubeni Corp and China's Jinko Solar Holding illustrates global investors' appetite for the Gulf's diversified energy basket - coveted support, especially from the East.

In Saudi Arabia, a world record for the lowest levelised cost of electricity (LCOE) for onshore wind power was made in August by the 400 MW Dumat Al Jandal wind farm, closing at 1.99 US cents/kWh. The \$500mn project will generate enough power to supply 70,000 Saudi homes when it comes online in 2022.

Generally, the main benefactors of wind potential will be Saudi Arabia, Kuwait and Oman. Saudi developers will build 6.2 GW of wind capacity – 46% of the region's total wind capacity addition – between 2019 and 2028, suggests Wood Mackenzie Power & Renewables.

And one of the world's largest solar plants in terms of peak energy production is being built in Oman by Petroleum Development Oman and GlassPoint Solar. In the vein of fossil fuels and renewables being collaborators, the Miraah project (Arabic for mirror) is a 1,021 MW solar thermal facility that uses solar-generated steam for enhanced oil recovery (EOR) operations at the sultanate's Amal oil field.

In the nuclear power space, the world's largest nuclear plant under construction, the UAE's Barakh, is due to start operations next year. This project speaks volumes about global confidence in the Gulf's energy management, considering Arabia's long-running security and political challenges. Saudi Arabia also plans to build two large nuclear power reactors as part of the kingdom's projected 17 GWe of nuclear capacity by 2040, potentially providing 15% of its power.

The role of national oil companies in the Arab Gulf – economic engines and social leaders – will only become more instrumental in setting a lower carbon tone for other state entities and the private sector to follow.

ADNOC must keep mastering this balancing act between fossil fuel growth and low carbon growth if it wants to cut greenhouse gas emissions by up to 10% by 2023 while increasing oil production by 66% from today's 3mn b/d by 2030.

Reputational opportunity ahoy?

The carbon intensity of the global economy fell by 1.6% in 2018 - less than half of the decarbonisation rate witnessed in 2015 (of 3.3%) when over 190 governments committed to the Paris Agreement. 'It's worrying that progress on climate seems to have stalled. There's a huge gap between the rhetoric of the 'climate emergency' and the reality of an inadequate global response,' stresses Jonathan Grant, Director, PwC. At this rate countries won't even achieve their own national targets (NDCs), nor the global goal of the Paris Agreement.

Therein lies an opportunity for the Arab Gulf to spearhead a global rallying cry – a political opportunity to spur the global influence that the region aspires to in its national visions.

The same applies to putting a price on carbon – an oft-discussed but still opaque incentive to roll out more green investments in the region. The World Bank said that the 40 countries and more than 20 cities, states and provinces that use carbon pricing mechanisms cover just 13% of annual global GHG emissions.

Trouble spots

The International Monetary Fund (IMF) expects GDP growth in the Gulf Cooperation Council (GCC) to be 2.1% in 2019, only a modest improvement from 2% growth from 2018 – not rosy, but stable. Ongoing fiscal consolidation, oil prices hovering around \$60/bl and Record-breaking bids in renewable energy auctions in the UAE and Saudi Arabia in 2016-2018. making solar power costcompetitive with conventional energy technologies, were a gamechanger in the region's psyche

Public Private Partnership Directorate General of the Ethiopian Ministry of Finance.

Reaching across the Atlantic, the UAE-Caribbean Renewable Energy Fund between the UAE Ministry of Foreign Affairs and International Cooperation, Abu Dhabi Fund for Development and Abu Dhabi Future Energy Company (Masdar) is the largest renewable energy initiative of its kind in the Caribbean region.

> the region's geopolitical tensions drag progress when it comes to large-ticket renewable energy projects. Plus, some parts of the conventional energy basket are working too well.

'A more moderate power demand growth outlook could limit the appetite for renewables development, especially as the pipeline of the projects is only now starting to more clearly shape up. Our global power plant database shows the number of gas-fired projects in development across the region is very large and quite stable,' explains Bruno Brunetti, S&P Global Platts Analytics' Head of Global Power Planning.

The Gulf also needs to invest in some smart public relations for two key reasons – to highlight the region's low carbon progress and to offset the negative headlines of geopolitical unrest. Both are crucial for encouraging much-needed investors, especially as the *BP Outlook* expects the Middle East's energy consumption to rise by 55% by 2040.

For the former, one positive story can be that Saudi Arabia burned an average of 400,000 b/d of crude oil for power generation in 2018, data from the Joint Organizations Data Initiative (JODI) shows – the lowest volume since at least 2009. For the latter, positive messaging must counter news of oil tankers ablaze off the Gulf's coastline and drone attacks on Saudi Arabia's oil infrastructure. At the most basic level, investors need to know their projects are safe.

Laudable progress in recent years must now transcend into innovations that stretch decades; longevity is the real ace card. That will be the tricky part, for this is a marathon not a sprint. Place your bets.