Harvesting light

A commentary on the state of solar power in the Middle East by Abdul-Haq Mohammed and Sam O'Doherty of Trowers & Hamlins.

The vitality of carbon neutrality and the renewable energy industry is fully incumbent upon the Middle East, having been at the heart of the oil market for a century. The mantle of becoming a diversified energy powerhouse has not been shied away from.

This article looks at the solar energy framework in the GCC and gives consideration to a versatile and attractive market.

BAHRAIN

In relative terms the Bahraini economy has made progressive strides to diversify itself compared with other members of the GCC. Notably the fossil fuel sectors in the Kingdom accounted for just less than 15 per cent of GDP in 2019. The transition to photovoltaic production is not without its complexities, but the island has taken strides in the direction of power generation from solar energy.

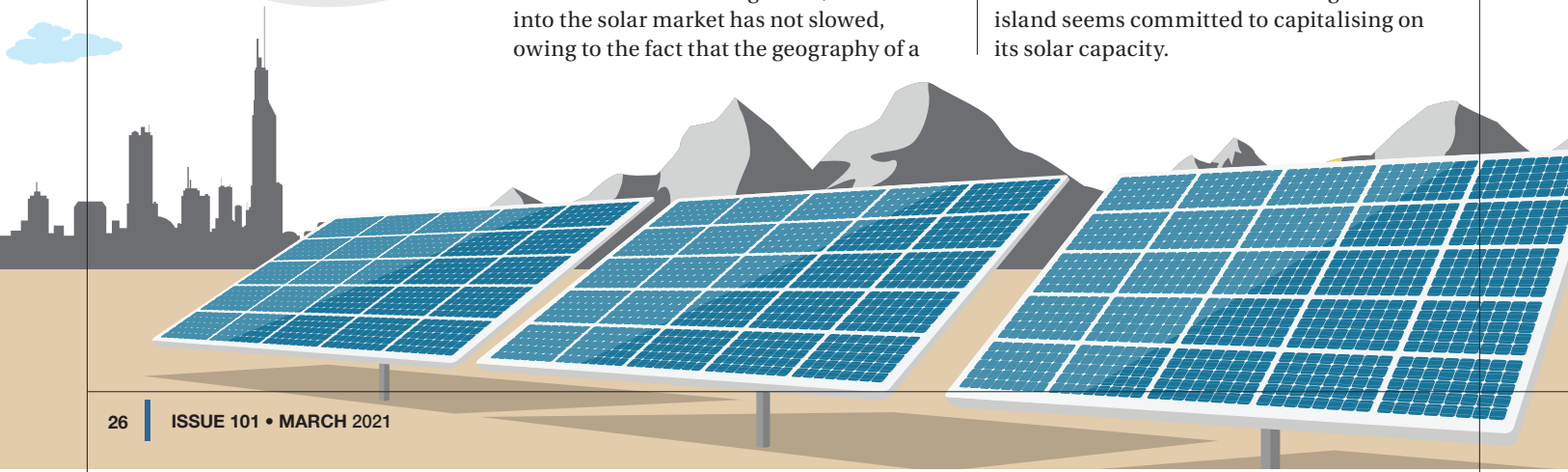
A target of 700 megawatts (MW) per annum of renewable generation capacity by the year 2030 has been set. For reference a utility scale solar farm could reasonably achieve 1 MW for each 5-10 acres of land it sits on, and for each MW produced the expectation in broad terms is of approximately 1000 MW hours (MWh) of energy. Each MW of solar production could power around 200 households.

Although Bahrain's square acreage could be considered a limiting factor, investment into the solar market has not slowed, owing to the fact that the geography of a small desert island potentially allows for a separation between the metropolitan consumer and the arid producer.

At the time of publication, Bahrain's Electricity and Water Authority is expected to request tenders to develop the solar generation potential (i.e. install and run plants) on the rooftops of state buildings. In terms of surface area versus production, this scheme will optimise output without the need for a lift and shift initiative, and without the cost of additional storage post-generation. Symbolic of the country's commitment to renewables the Sustainable Energy Authority (SEA) was established in 2014 and whose self-stated mission is "to develop a cohesive and sustainable energy policy and to promote renewable energy and energy efficiency in the Kingdom of Bahrain".

Bahrain's National Renewable Energy Action Plan includes a renewable energy mandate for all new buildings. The goal is to attain five per cent coverage of Bahrain's consumption by 2025. Already in the last two years projects have grown in considerable scale and complexity, with landfill being repurposed for solar production and the Ministry of Education making steps towards footprint reduction using solar in a state backed initiative.

The development potential of Bahrain in the renewables sector may never have been greater, with both an appetite for growth and an onus on it to achieve that growth the island seems committed to capitalising on its solar capacity.



UNITED ARAB EMIRATES

In the UAE the Energy Strategy 2050 has been granted over £110bn to meet its goal to increase the contribution of clean energy sources before the year 2050, with the target of achieving fifty percent of all energy output. In the nearer term the UAE is working on its Vision 2021 strategy to generate 27 percent of its energy requirements from clean sources.

Of evident note is the Shams 1 project, which is currently the world's largest standalone concentrated solar power plant. The plant is 2.5 square kilometres in size, and has the capacity to feed 100 MW of electricity into the national grid per annum.

Alongside the federal plan, Dubai has set its own Clean Energy Strategy; aiming to generate 75 percent of Dubai's power from clean energy by 2050. The emirate is aiming build the largest solar tower on a single site in the world, which is expected to begin power generation within five years, based on a model of heliostats feeding into that tower.

Innovation has been twinned with introspection in the UAE, similarly with Bahrain, where companies have been contracted through tender to retrofit more than 30,000 buildings with the excess generation being fed back into the national grid. An awareness of resources versus cost makes the broader application of solar power and end-user engagement possible, and commercially attractive. Both commercial and residential properties can benefit from a retrofit, not to mention the relative ease of installation on new-builds.

With diversification being at the forefront of industry mind-sets it should be noted that a landmark has recently been met in the UAE with the combined efforts of the Dubai Energy and Water Authority (DEWA) and Emirates Global Aluminium resulting in the world's first solar produced aluminium. DEWA will now aim to supply 560,000 MWh of solar power annually from the Mohammed bin Rashid Al-Maktoum Solar Park. This generation should be sufficient to make around 40,000 tonnes of aluminium in year one.

SAUDI ARABIA

A factor that can be attributed to the Gulf generally, and to Saudi in particular, is the political will to see projects at scale developed quickly, in a futuristic and future-facing way. The King Salman Renewable Energy Initiative and the Saudi Arabian National Renewable Energy Programme are no exceptions, being products of 'Vision 2030' which is the stick in the ground for renewables in the Kingdom.

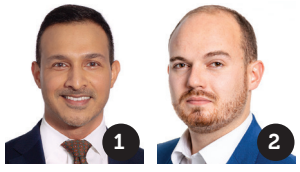
In January 2021, the eleventh session of the General Assembly of the International Renewable Energy Agency (GIREA) met. The Saudi representatives to GIREA stated that the intention for the Kingdom is to generate fifty percent of the nation's power consumption requirements using renewable energy by 2030, with the remainder provided by gas.

With the advent and development of the Saudi giga-cities and coastal resort projects, the key factor at play in introducing solar to the country, and making laudable goals seem possible, is that of newness. The scale of Neom, for example, is not comparable to current developments in Bahrain or the UAE so necessity may be inspiring innovation as far as solar is concerned.

The market would appear to favour turnkey solar projects, where developers are able to provide productive installations that are handed over for use. A recent test of solar in practical application on a utility scale was seen with the Neom bivouac at the Dakar Rally, where a 20ft and a 40ft modular container were able to successfully meet consumption needs.

WHAT NEXT?

It seems both likely and sensible that the solar energy market will continue to grow. International expectation twinned with national necessity is creating a competitive and productive market in solar power generation. With the Gulf placed both literally and figuratively in the sun, it is able to reap huge benefits from investment in this growing sector.



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