

Falling costs help solar thrive in the desert



MENA | Solar in the Middle East and North Africa continues to flourish, with utility projects leading the way. As Paul Mansouri and Angela Croker of Norton Rose Fulbright write, the development of battery storage technology and a growing interest among large corporates in solar as an energy source will help the market to continue growing

Solar energy continues its success story in the Middle East. Falling costs, healthy competition, fluctuating oil prices and an ever-increasing demand for capacity are all factors helping the continued, impressive growth of solar energy in the region. Some reports indicate that the Middle East is expected to more than triple its share of renewable energy from 5.6% in 2016 to 20.6% in 2035 with solar energy making up the majority of this figure. Meeting such targets will necessitate significant capital investment in renewable energy projects in the region, with all forecasts indicating that the renewable energy sector, and in particular solar, will continue to grow for the foreseeable future.

The UAE and Saudi Arabia remain at the forefront of the large utility-scale solar projects with neighbouring countries following closely at their heels. The major-

ity of countries in the Middle East now have their own ambitious national renewable energy targets that they are working hard to meet.

In the UAE, Abu Dhabi's Sweihan PV power project is currently under construction and will have a capacity of nearly 1.2GW when it is commissioned in April 2019. Upon completion it is expected to become the world's biggest solar PV plant and should generate power sufficient to supply nearly 200,000 homes. With a plan to have around 5.7GW of renewable energy capacity installed by 2026, the Abu Dhabi government is pushing on with increasing its solar energy capacity and is leading the region's drive towards renewables.

Dubai, with the Mohammed Bin Rashid Solar Park, now has the largest single-site solar park in the world with a planned capacity of 1GW by 2020 and 5GW by

Dubai's Mohammed Bin Rashid Solar Park. Most countries in the MENA region are now looking to solar to meet future energy needs

2030 and is well on its way to meeting its commitment to 7% clean energy by 2020 and in turn, 25% by 2030. Whilst the majority of renewable energy capacity installed by 2030 will be generated at the Mohammed Bin Rashid Solar Park development, Dubai has set itself a further goal to produce 75% of its energy from clean sources by 2050. The successful implementation of its ambitious Shams rooftop solar programme, which allows DEWA customers to install solar panels on their rooftops connected to the grid under a net-metering agreement, will also be critical to the achievement of these targets.

In the Kingdom of Saudi Arabia, whilst the future of Saudi Arabia's US\$200 billion SoftBank solar project announced earlier this year may be uncertain, there is no doubt that there is still a significant focus on renewable energy to free up oil exports. Saudi Arabia has set an ambitious target

to add 9.5GW of renewable energy by 2023 and is expected to tender 3.25GW of solar capacity in the next year. The 300MW Sakaka PV solar project in Al Jouf reached financial close in the middle of November, marking REPDO's first ever utility-scale project tendered under the National Renewable Energy Programme.

Oman aims to reach a 10% renewable energy share by 2025 and recently announced its second solar power project with a capacity of 500MW-1GW. This follows on from the 500MW Ibri PV project tendered earlier this year which is expected to commence operations by 2021. Bahrain is also making strides in the renewable energy space, with project proposals for the development of a 100MW solar PV plant at Askar landfill site expected as this publication went to press. New projects are also coming online in Kuwait with the Kuwait National Petroleum Company launching a tender for the installation of up to 1.5GW of solar as part of Kuwait's plans to produce 15% of power from renewable energy by 2030.

Egypt remains an active market, following on from its success with approximately 1.5GW of solar PV projects reaching financial close in the Benban area at the end of 2017 as part of the Round 2 solar feed-in tariff programme. Egypt has now moved away from the feed-in tariff structure in favour of competitive tenders with a view to driving down the cost of clean energy. Late last year, Egypt issued a competitive auction to build a 600MW plant in the West Nile Region for which it has recently set a maximum price of US\$/c 2.5 per kWh. This follows on from the Kom Ombo 200MW project where the lowest offer submitted in August by ACWA Power was US\$/c 2.752 per kWh.

With the cost of solar energy projects already at an all-time low, and competitive tenders producing ever reducing tariffs, the region is clearly enjoying a renewable energy boom. Whilst large-scale utility projects dominate the renewable energy space in the region, companies operating in the Middle East are looking for ways to reduce their electricity costs as governments in the region shift away from fossil fuel subsidies. In addition, large numbers of corporations have set their own ambitious targets for emissions reductions or renewable energy sourcing either independently or under global initiatives such as the global RE100 initiative, under which companies pledge to source 100% of their electricity from renewables; this is

expected to increasingly impact the Middle East and the way large corporates purchase power. With solar pricing on government tenders continuing to hit record lows, raising some questions around long-term market sustainability, some developers are looking to secure deals with corporate off-takers directly. Factors such as these are expected to significantly accelerate the adoption of corporate PPA contracts in the Middle East and North Africa and we are likely see increasingly significant activity in this area in the near future.

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Demand for storage

Finally, with the increasing prevalence of renewable energy production in the region, the question of energy storage is also becoming increasingly relevant. Whilst solar production halts when the sun does not shine, demand for energy does not significantly fluctuate. If the goal of the region is to become permanently independent of fossil fuels, much more investment in safe, reliable and efficient energy storage will be required. The World Bank Group announced in September that it was committing US\$1 billion for a new global programme to accelerate investments in battery storage for energy systems in developing and middle-income countries. In addition to committing this US\$1 billion, it will fundraise another US\$1 billion in concessional climate funds and the programme is expected to raise an additional US\$3 billion from public and private funds and investors. The potential in this market is immense.

Costs of battery storage have declined significantly with market analysts estimating a drop in cost of nearly 80% between 2010 and 2016, and predicting further price declines to come. This, coupled with the constant improvement in performance and reliability of utility-scale batteries, is attracting increased levels of investment in battery storage projects. In the Middle East however, battery storage projects are

still at early stages and utilities are looking to trial and test the technology before fully embracing it, in particular given the extreme ambient conditions that the batteries need to withstand.

For example, in Dubai, DEWA is trialling large-scale battery storage in the Mohammed Bin Rashid Solar Park. Batteries are being installed in Phase 1 of the solar park, a 13MW PV plant built by First Solar in 2013. The batteries will have an aggregate storage capacity of 7.2MWh. The success of this trial will certainly influence the development of larger scale battery storage installations in the UAE. Jordan, which has a target of securing 10% of energy from renewable energy sources by 2020, has seen the number of renewable energy projects skyrocket in recent years. As a next step Jordan is pressing ahead with a 30MW electrical storage project located in the Maan development zone to further bolster its expansion in solar generation.

There is significant momentum in the transition to a more sustainable future in the Middle East. With its abundant sunlight and vast desert expanses, the natural advantages of the Middle East are finally being harnessed. Battery storage will play its part in maintaining this momentum and contributing to further growth. ■

Authors

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To read more about the construction of Egypt's Benban solar park, turn to p.76