

Emerging market briefing

Tom Kenning looks at the latest developments in some of the most promising emerging PV markets worldwide. This issue features Saudi Arabia, Colombia, Mexico and the UAE

Saudi enters second phase of solar revolution

Saudi Arabia has launched the second round of its solar power tender programme with a request for proposals for 1.5GW of solar, following a year of big announcements attracting both scorn and excitement. The Middle Eastern country and Japanese firm Softbank made headlines last year with their talk of a 200GW solar plan, but Saudi Arabia's sovereign wealth fund later rejected media reports that the multi-billion dollar solar programme had been halted.

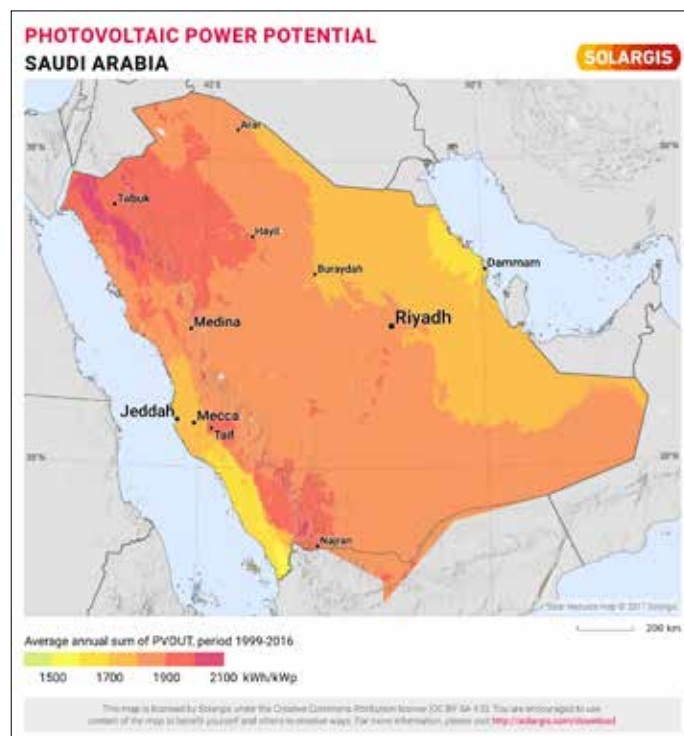
The latest move, following the 300MW Sakaka project awarded to local firm ACWA Power last year, is part of the landmark National Renewable Energy Program (NREP) by the Renewable Energy Project Development Office (REPDO), with an overall target of 40GW of PV installs and 20GW of wind energy by 2030. The new 1.5GW of solar capacity will be split up between seven projects ranging from 20MW to 600MW, with another 700MW or more to be made available later this year.

The move comes as part of a Saudi attempt to integrate more alternative energy sources under the framework of the KSA Vision 2030 and the National Transformation 2020 Programme.

News also emerged recently that China-based firm Huawei had been chosen by a consortium of ACWA Power and contractor AIGihaz as the sole inverter supplier for the 300MW Sakaka plant, the first large-scale solar project Saudi Arabia, won with a world record-low tariff in early 2018. The developers have also closed financing of SAR1.2 billion (US\$319 million) for the project in Al Jouf. The transaction for the PV system, which has a tariff of just 8.781 halalas/kWh (US\$2.3417/kWh), is financed through limited recourse ring-fenced project financing with the entire debt fully underwritten by Natixis. In addition, the Arab National Bank provided an equity bridge loan for the transaction.

In related news, Saudi Arabia's National Industrial Clusters Development Programme (NICDP) and petrochemicals conglomerate SABIC have signed memorandums of understanding with China-based PV manufacturing giant LONGi Group and OCI to bring fully integrated solar manufacturing to the country.

Tariq Bakhsh, vice president of the chemicals and renewables program at NICDP, said that the signed MOUs included a feasibility study that was expected to take around six months to complete.



Credit: SolarGIS

Saudi Arabia has invited proposals for 1.5GW of PV

South Korea's OCI is a major polysilicon producer, while LONGi Green Energy Technology is a largest dedicated monocrystalline wafer producer. Plans for establishing a major PV manufacturing hub in Saudi Arabia are not new but previous plans have never materialised.

Saudi Arabia has a young, growing population, soaring electricity demand and a desire under the relatively new leadership to aggressively diversify its economy. Its package of reforms are collectively referred to as Vision 2030.

Colombia poised for first renewable auction

After some delay due to developers and investors requiring more time, Colombia has announced that it will now hold its first renewable energy auction on 26 February, with the aim of awarding 1,183GWh of electricity per year under 12-year power purchase agreements (PPAs).

The country is hoping to raise its installed renewable energy capacity from roughly 50MW to more than 1.5GW and in this case will be selecting solar, wind and biomass projects with a capacity of over 10MW.

The Ministry of Energy and Mines had originally scheduled the auction for 2 January, but most stakeholders had asked for extra time. Any new projects allocated must be connected to the grid by 30 November 2021, but projects that have been online since 31 December will also be eligible to compete in the auction.

In January, Spanish renewable energy company Diverxia Infrastructure gained approval from the Mining and Energy Planning Unit (UPME) of Colombia to develop its first large PV project within the country. Diverxia's project will have an installed generation capacity of 240MW.

More and more large-scale PV projects are starting to sprout up in Colombia. Back in May 2018, Enel announced that it was developing the 86.2MW El Paso solar power plant in the Cesar department in the north of Colombia, which was the largest solar project approved in the country at that point. The plant will be connected to the National Power Transmission System through the El Paso Substation.

Vikas Bansal, head of business development, solar international at major EPC

Mexico stutters with auction cancellation

Having muscled into the solar PV world stage through its energy reform and a series of successful tenders, Mexico has hit a major roadblock through the cancellation of its latest clean energy auction and a shift in power back to state-run power firms.

The fourth long-term energy auction had been due to take place last December, but was placed under review after the new government, led by Andrés Manuel López Obrador, took office. The Mexican National Centre for Energy Control (CENACE) then cancelled the auction following the orders of Mexico's Department of Energy (SENER), which noted that the move would be compliant with Mexico's legal framework and technical, economic and energy planning considerations.

The cancellation has surprised investors, developers and even members of the government.

López Obrador wants to give market control back to the Comisión Federal de Electricidad (CFE), a state-owned utility, which has been facing competition from independent power producers under moves to liberalise energy markets through a major energy reform. It was this reform that had paved the way for Mexico stake a claim as one of the most promising PV markets across the



Credit: Enel Green Power

Solar's progress in Mexico has suffered a setback following the cancellation of its latest clean energy auction

Americas. There are now worries that besides cancelling the auctions, there could be further moves to reverse the progress made under the energy reform.

Under its three previous auctions, Mexico had awarded more than 4.8GW of solar PV capacity.

Emirates go large

Two emirates of the UAE revealed major plans for solar progress in the last quarter. Ras Al Khaimah (RAK) has revealed a 1.2GW solar ambition, while Abu Dhabi announced a whopping 2GW tender.

At the launch of new sustainable building programme dubbed Barjeel, Ras Al Khaimah's municipality said it would look to build out 600MW of rooftop solar and 600MW of utility-scale projects.

The RAK Municipality has a 2040 objective of 30% energy efficiency improvements, 20% water savings and 20% renewable energy generation. A retrofit programme was announced last year followed up by this week's new-build guidelines, which will be applied throughout the emirate, including in Free Zones. The programme, coordinated by the Energy Efficiency and Renewables Office (REEM) within RAK Municipality, aims to retrofit about 3,000 buildings by 2040. RAK Municipality had also issued a set of guidelines to support all government entities in achieving their energy efficiency goals, and will provide direct support through its Energy Efficiency and Renewables Office (REEM).

Meanwhile, the Barjeel guidelines for new buildings will require a 30% cut in energy and water usage. A 'solar ready' requirement has also been added. The rules are voluntary for the first year with incentive offered via discounted

permitting fees, before becoming mandatory.

Elsewhere, Abu Dhabi has invited expressions of interest (EOI) to develop a 2GW solar PV Independent Power Project (IPP) in Al Dhafra in the emirate's Western Region. Emirates Water and Electricity Company (EWEC) said in a public notice that the project would involve the development, financing, construction, operation, maintenance and ownership of a greenfield solar PV power generation plant together with associated infrastructure. The deadline for submissions for the EOI is 5 March 2019.

China's JinkoSolar and Japan's Marubeni had bagged the 1.2GW Sweihan project in Abu Dhabi in March 2017 with then record-breaking low bid of 2.42 cents per kWh, which was subsequently eclipsed that same year by the 1.786 cents per kWh low bid received for Saudi Arabia's 300MW Sakaka solar PV project, though that project was eventually awarded in 2018 to the second lowest bidder who bid 2.34 cents per kWh.

Adding to the fray, Dubai Electricity and Water Authority (DEWA), Expo 2020 Dubai and Siemens have also broken ground on a joint project that will become the Middle East and North Africa's first solar-based hydrogen electrolysis facility, showing the UAE is also ready to diversify its energy mix in unconventional ways.

firm Sterling & Wilson, has previously said that although Colombia's government policy has a lot of regulatory challenges, in the next one to two years the country will become an important market from a scale perspective. Colombia depends largely on hydropower, and solar is expected to help generation during the dry season.

Last April, Colombian utility EPM installed what it claimed to be the country's first floating solar plant, standing at 100kW at the El Peñol reservoir. The pilot project tests the technology and its fundamentals in comparison to ground-mount and rooftop systems. For this purpose, traditional solar panels were installed on a roof at the Guatapé Central camp, under the same irradiation conditions. Innova Capital Partners and French floating PV specialist Ciel & Terre

(C&T) have also agreed to jointly develop floating solar plants in Colombia.

Colombia renewable energy company Celsia has also started construction on its second solar farm in Colombia, which will be located in the municipality of Santa Rosa de Lima, in the department of Bolívar, and will have an installed generation capacity of 8.8MW. The installation will be developed by Celsia's subsidiary, Epsa, and will feature 32,000 PV modules. It will be built on a 12-hectare site. During construction, an estimated 120 jobs will be created.

Colombia is currently supporting solar and renewables through its new auction mechanism and the 2018 Resolution CREG 030, which regulates distributed solar generation (up to 100kW) and distributed generation from renewable sources (between 100kW and 1MW).