Emerging market briefing

Tom Kenning profiles some of the emerging solar markets around the world that look set to gain momentum in 2017

Solar surprises in Argentina auctions

Argentina is a latecomer to the explosion of solar across the globe, having been tarnished with an awkward reputation among foreign investors and boasting just 8MW of PV installations to date. However, a new pro-business president and the launch of two well-handled large-scale tenders could well catapult Argentina into a respected solar market. A previous attempt at tendering renewables nose-dived with zero project completions, so the big question will be whether any of the latest awards translate into solid projects.

As the third largest economy in Latin America, Argentina is only just taking off with renewables since the previous administration led by Cristina Fernández de Kirchner was not receptive to foreign technology or capital, says Carlos St. James, managing director of financial advisory firm Santiago & Sinclair, and co-founder of the Argentine Renewable Energies Chamber (CADER). She wanted to build renewables but no one would invest or lend money.

"It was just not a credible market," adds St. James. "They did an auction in 2010/11 called GENREN, when they sought 900MW and it was well oversubscribed with a lot of interest, but in the end nothing got built, even though the prices were really attractive."

Now with the arrival of President Mauricio Macri, development banks and other financiers are finally looking to invest.

Credit Solar -GIS

Argentina looks set to build on promising tenders held this year in 2017, despite some concerns over financing

RenovAr 1

A new energy ministry swiftly organised a competitive bidding auction for 1GW of wind and other technologies, setting aside 300MW for solar PV under 20-year power purchase agreements (PPAs).

"Solar ended up being far more oversubscribed, even than wind, which I think caught them by surprise, because Argentina always tends to think of itself as a wind country and I think they just weren't aware and didn't realise that solar is really kicking everyone's ass," says St. James. "Solar is taking over everywhere."

In response, the Ministry of Energy and Mines (MEM) increased the solar portion by awarding 400MW at an average price of under US$0.05975/kWh. St. James says this was "pretty good given that Argentina really has no credibility and is technically still in default as a nation".

Jujuy province-owned developer JEMSE took away three projects of 100MW each, while Spain's Fieldfare in partnership with Isolux took a 100MW project. St. James notes that China was a particular winner in the auction given that three quarters of the winning solar projects will involve Chinese technology and capital.

Developers that missed out on the first round were told they could bid again in the second tender for 200MW, named RenovAr 1.5, but at a ceiling price of US$0.05975, which is the same as the average price in RenovAr 1. Again the tender was oversubscribed three-fold.

Trouble building

Whether projects get built is a real concern, says St. James, since bankers still remember getting "screwed royally" after the GENREN tenders and losing a lot of money. On the flip side people recognise Argentina as the world's 25th largest economy and see potential for making a lot of money.

The ministry wants to get all the projects built in 12- to 18-month timeframes, but St. James is sceptical of such tight deadlines, due to logistical constraints. "Everything will take longer than they want to and in the meantime while everyone was very enthusiastic, there's some heartache coming up here," adds St. James.

"I don't think anyone can make a blanket statement that all of the awarded projects will be built," agrees Juan Payeras, chief investment officer at the infrastructure and natural resources department of the International Finance Corporation. "It's a combination of tariffs, technology, location, returns that are expected by the sponsor and conditions imposed by the banks."

With significant deployment in some other large Latin American markets and some very large experienced European players engaged in bidding, Argentina should benefit from the collective experience of the solar industry in executing large utility-scale solar PV projects, adds Dana Younger, chief renewable energy specialist at IFC. Experience gained to date in engineering, procurement and construction, and other contractual arrangements should be an advantage.

Beyond the RenovAr tenders

It is expected that any forthcoming tenders will have a similar pattern of putting the ceiling price at the average of the previous auction. Furthermore,

given the surprising high interest in solar, it is likely to be given a larger role to play in each tender. St. James says that people thought wind would dominate as there is so much high-quality wind resource in Patagonia and the southern half of the country, but solar has turned out to be extremely attractive as well.

"Law requires that [Argentina] get to 10GW of renewables over the next decade," says St. James. "That's a whole lot of investment and if they pull this off they are going to be doing auctions for 1,000MW every year for the next decade or so."

Argentina will still have to learn from other countries in terms of transmission risks. Grids are expected to be capable of handling the capacity additions of the first two tenders, but after this the ministry will have to become choosy and only approve deals based on substation locations in order to avoid congestion. St. James says stakeholders should keep an eye out for whether Argentina does start investing money in additional transmission grids, because if they do not they are "going to run into a wall".

St. James compliments the MEM for its handling of the first auction as it approved projects not just on price but according to what nodes developers were intending to connect to. It shows they knew in advance where there might be traffic jams and where there won't be.

For now St. James says: "Everyone who gets approved for these projects in 1 and 1.5; they know they have plenty of room on the transmission grid."

The enthusiasm for deploying solar in Argentina is undeniable and the major hurdles of gaining investor confidence and obtaining financing seem to be easing. But with a paltry installation base so far, the industry will look on keenly to see if the first projects start getting built.

Financiers return to Argentina

The IFC's Juan Payeras explains who will finance the tendered projects in Argentina.

"The current administration has undertaken a large number of reforms with special care during the design of the RenovAr auctions precisely to ensure the financial viability of these projects.

"While the benefits of the programme resulted in an oversubscription situation, the issue remains as to whether the financing will be in place. Commercial banks have shown an interest in Argentina quite superior to anything that was exhibited before the current administration; however maturities are still at levels that would be difficult for these kinds of projects.

"We have heard that maturities from commercial banks right now are in the range of seven years or thereabouts, however, there is quite extensive interest on the part of multi and bi-lateral financiers in Argentina and in there you can count on institutions like IFC, IIC, FMO, EEC, EKF etc. There is a healthy number of multi and bilaterals that are actively considering financing projects that were awarded under RenovAr 1 and will be awarded under RenovAr 1.5.

"We are looking to finance projects that are as large as possible for economies of scale reasons."

Taiwan embarks on its 20GW target

Taiwan's solar deployment has been slow to kick off in comparison to its mature and bustling PV manufacturing industry.

A year after a new government played its hand by targeting 20GW of solar by 2025 – driven by a desire to avoid adding more nuclear capacity – movement remains relatively pedestrian with 980MW of cumulative installations at the end of August. However, Taiwan looks set to break into the top 10 solar markets in terms of capacity additions around the world in 2017, according to EnergyTrend, a division of TrendForce.

To kick off the 20GW programme, the short target was to reach 1.52GW deployment within two years, including 915MW for rooftop and 610MW for ground mount, says Hung-Sen Wu, deputy division director of the non-profit R&D organisation Industrial Technology Research Institute (ITRI).

Credit Taitra

Chen Chien-Jen, vice president of the Republic of China (Taiwan), addressing PV Taiwan. Taiwan has been forecast to be among the world's top 10 solar markets in 2017

Much of the 20GW is likely to be set aside for utility-scale solar, but in one of the most densely populated countries in Asia land acquisition will be a real challenge. Uncultivable and salty land has been made available for solar development. However, this includes so-called 'sinking land' where groundwater has been withdrawn to the extent that the land is liable to sink in various locations. This means robust solar equipment will be essential for a well-performing plant.

Eric Wang, Asia Pacific sales director for Chinese inverter firm Huawei, says the government must also open up industrial space and even agricultural areas, especially land near the big substations. Most sinking land also happens to be located far away from quality transmission lines.

Module choice is also important since the Taiwan market has been negatively affected by typhoons.

"The typhoons are very scary here," says Sascha Rossmann, vice president, solar global sales at module manufacturer Winaico. "There is a lot of damage to the PV systems here because of the poor designs of the panels and also the mounting system. If the mounting system resists the wind speed, the panel must resist the vibration."

Mexico boasts Latin America's largest pipeline

Mexico has continued its strong push for renewables following the liberalisation of its energy sector.

With private entities now able to participate in the energy market, the country was able to hold its second long-term renewable power auction. After an impressive first auction, Mexico followed up with 2.4GW of solar in September's round and PV is expected to continue winning large capacities in years to come.

Mexico now has the largest contracted solar pipeline in the Latin American region.

GTM Research has also deemed Mexico as having the greatest potential for distributed generation given the recent reforms. This market reform sought to end the monopolies held on the electricity sector by the Comisión Federal de Electricidad (CFE). In doing so, it would open up Mexico's energy sector to new players, investment and new technology.

A total of 23 winners out of a pool of 57 eligible bidders were selected in the latest auction, obtaining long-term energy contracts and clean energy certificates (CEL) to build 2,871MW of renewables projects at a cost of US$4 billion. The average price for clean energy was US$0.03347/kWh.

Credit SPG Solar

After a strong 2016, Mexico's burgeoning PV market looks set for further growth in 2017

Solar dominated once more by securing 54% of the 8.9TWh annual power supply awarded and 53% of the 8.9 million contracts in the auction. Out of the 23 winners, 14 have secured plans for PV projects across 15 Mexican states. Successful bidders included Enel, Engie, Acciona, Iberdrola, Zuma Energia, IEnova, OPDE, Tuto Energy, Grenergy, X-Elio Energy and Fotowatio, among others.

Ministry leaders subsequently confirmed that the country's third long-term power auction is scheduled for April 2017.

The International Energy Agency (IEA) has also put out a special report predicting that Mexico will hit between 30-40GW of solar PV deployment by 2040 under various scenarios modelled. It also forecast that its auctions will lead to more than half of the country's new power generation capacity installed between now and 2040 coming from renewables.

Jordan readies next large-scale tender

Jordan saw the commissioning and financing of multiple utility-scale projects over the last three months, while also unveiling the Middle East's largest solar plant.

First Solar took centre stage by completing the 52.5MW (AC) Shams Ma'an PV project, but other developers can look ahead to the 300MW renewables tender announced by the government, of which 200MW will be for solar PV again in the Ma'an area.

Elsewhere, Dubai-based solar financing company Adenium Energy Capital and California-based renewables firm RAI Energy International in September started commercial operation of a 20MW PV project north of Amman in Mafraq. At the time, REI president and chief executive Mohammed Alrai said: "The Jordanian solar power sector is poised for explosive growth."

At about the same time, Norwegian integrated independent solar power producer Scatec Solar also completed a 22MW plant, its third in the region.

Developer confidence will also be buoyed by the securing of financing for several large-scale projects. In November Acwa Power secured two separate loans each of US$27 million from the European Bank for Reconstruction and Development (EBRD) and the Netherlands Development Finance Company (FMO). These were for a 60MW plant for which it successfully bid in the second round of the country's PV tenders with a bid of 0.043 Jordanian dinars (US$0.061/kWh).

Credit First Solar

Completion of the Shams Ma'an project has fired the starting gun on Jordan's emergence as a utility PV market, with more in the pipeline

The International Finance Corporation (IFC) and the Canadian government have also partnered up to finance a US$76 million solar plant. The 50MW project is to be built by FRV, part of Abdul Latif Jameel Energy (ALJ) in Mafraq.

Meanwhile, Abu Dhabi's clean energy firm Masdar secured the power purchase agreement for a 200MW solar plant, which will be connected to a sub-station just outside the capital Amman.

Demand for power is growing in Jordan and solar can play a big role in adding to its generation capacity. Moreover, the country is actively upgrading its high-voltage distribution network in order to integrate more renewable generation into the grid. ■