

Japan seeks to regain footing after solar stumble

Japan | Japan's reputation as the PV star performer of the past two years has suffered a knock with the cancellation of 1.8GW of projects. With the country's nuclear debate threatening to reopen and rumours of a solar backlash, Andy Colthorpe assesses the future for one of the world's top PV markets

Japan is still projected to be the world's second biggest PV market this year.

According to NPD Solarbuzz, it is one of five countries to make up 95% of global PV module demand. In all, Japan installed over 7GW across all segments during the country's 2013 financial year.

Yet the past year has seen some developments that could point at rocky times ahead. Due to the lack of available grid connection and a variety of other reasons, a bottleneck of un-built large-scale projects has developed. Meanwhile rising electricity prices led one analyst recently to talk of a possible looming public backlash against solar in a country where support has previously been nothing but forthcoming.

Project cancellations, grid pressures

In the short term, Japan will continue to see plenty of activity in large-scale solar, while the residential and commercial markets also have manufacturers racing to meet demand. But further ahead the picture looks more complicated. The FIT will end in 2020 and preparing for that era is the most pressing concern for many. The road to getting to that point smoothly, as the tariff rate falls by around 10% each year from the original ¥40 (US\$0.38) per kWh set in 2012, could also be a little bumpy.

Meanwhile, reports emerged in October last year that the government had decided to act on the fact that a large number of projects approved for the 2012 and 2013 tariff rates had yet to be built. There were concerns that some of Japan's huge pipeline of FIT-approved projects were less than serious and that some developers were even waiting for equipment costs to fall a significant amount before building the plant to receive a 2012 FIT and thereby maximising profit. In response, the Ministry of Economics, Trade and Industry (METI) imposed deadlines for developers to submit documentation relating to the equipment



Image: Solar Frontier

and land rights. At the first announcement of statistics made following the final August deadline, METI said that it had been forced to cancel 1.82GW of projects, almost 10% of the total approved in Japanese financial year (JFY) 2012. Hearings are also taking place for a further 2.7GW of projects. The grid connection problems are of equal, if not even greater concern, as shortage of available land. In a nutshell, 10 different companies are responsible for each of Japan's regional grids, with little interconnection if any between each of them. This is an ongoing problem in a country made up of a number of islands. A shortage of available land in many regions continues to put pressure on grids. Furthermore, consumer electricity prices have risen in Japan by between 10% and 20% since the inception of the FIT programme in 2012. According to Dr Hiroshi Matsukawa of Tokyo-based analysis firm RTS PV, the

Kunitomi Megasolar, built by Solar Frontier's EPC partnership with Belectric.

price rises, caused in part by the backlog of projects now coming online at the higher 2012 and 2013 FIT prices under which they were accredited, could have a "rebound effect" on public opinion of solar. Matsukawa said the situation could potentially become "extremely dangerous". Matsukawa said that in terms of threat to the industry, this could be worse in the short term than the current government's refusal to commit to a national target for renewable energy or to rule out entirely the chance of a return to nuclear power.

However, advocacy groups including the Japan Renewable Energy Foundation argue that broad public sentiment against nuclear is very much alive and Japan's energy resilience in the time since the nuclear switch-off is proof the country can survive without it. Also, the 2012 and 2013-approved projects that are still expected to be installed will perhaps ironically give solar a healthy construction boost in the short term.

Buoyant projects

In addition to these latecomers, a regular flow of projects will continue to provide the industry's backbone, often built by the

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Image credit: SS Nagoya Inc.

biggest Japanese firms and likely representing a strong showing in gigawatt term. Hitachi Hi Tech, for example, is targeting 300MW of Japan projects by 2017, in partnership with Swiss independent power producer Etrion. In a country synonymous with innovation and technology, some new steps are being taken to see what can be done to ease bottlenecks in PV pipelines and keep Japan's solar revolution on track. A joint venture company involving Kyocera is targeting 60MW of PV projects to be built on water by the end of the current Japanese financial year, for example. The first of the floating PV plants, a 2.9MW project across two arrays, will be built in Hyogo Prefecture, western Japan, using a mounting system produced by French company Ciel et Terre. According to Ciel et Terre, the cooling effect of the water will also contribute to increasing the floating power plant's efficiency. Somewhat less glamorous, but no less pragmatic, was an announcement in August that Japan's environment ministry will offer extra support to solar farm projects that are proposed for landfill sites that have reached their capacity for garbage. A study conducted by the ministry found that landfill sites could have the room to host up to 7.4GW of extra PV generation capacity.

There have also been some efforts made to accommodate the demand for solar from the finance sector. Between them, Japan's three biggest banks arranged loans for solar

worth around ¥390 billion (US\$3.8 billion) in JFY2013, according to one Japanese newspaper. One of those, Sumitomo Mitsui Banking Corp, has launched a 'solar loan' product aimed squarely at speeding up the process of financing a project up to 2MW in capacity down to one month from an average of two to three. Under a corporate financing structure it will lend up to ¥500 million (US\$4.5 million) over a period of up to 16 years.

Tough nut to crack

Japan is still a notoriously difficult country for foreign entrants to break, and this does not look like changing anytime soon. Tier-one Chinese manufacturers are the obvious exception, but nonetheless according to the Japan Photovoltaic Energy Association, of just over 2GW total PV module shipments in the first quarter of JFY2014, the vast majority, 1.39GW, came from Japanese companies.

Nevertheless, the country's big names are experiencing mixed fortunes, according to recent news and financial results. Solar Frontier reported a year-on-year improvement in ordinary profit and reduction in production costs in its most recent financial results at the end of July and parent company Showa Shell approved a plan to separate the two entities. The company also continues to build a 150MW manufacturing plant in Japan at which it will trial methods of producing cells close to end markets.

Ise Futami Megasolar, a 5.2MW plant built by developer Chiyoda, with Solar Frontier thin-film modules.

On the other hand, while Sharp Corporation shipped the highest volume of modules in the world in the first quarter of 2014, the company also took a US\$141 million hit on exiting 3Sun, its European thin-film JV with Enel. Sharp also warned earlier in the year that it is expecting a decline in sales and profitability in cell sales in 2014, due in part to a reduction in its overseas project development business, as well as a fall in Japanese residential installations. So Japan will continue to see a thriving PV industry, at least in the near future, in common with markets like the UK, where stimulus has come from external policy factors. Efforts including those to free up land and experiments with large-scale batteries and lithium-ion battery subsidies for residential customers (see storage overview article p.71) are being made to allow for capacity increases.

The current government's seemingly indecisive stance on the renewables versus nuclear debate notwithstanding, and following a METI denial of a rumour that drastic FIT cuts are imminent next year, we can almost certainly expect to see a healthy number of gigawatts installed in the coming few years that will keep Japan at or near the global top table.

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