

China's struggles with distributed PV



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Distributed solar | Throughout 2014, there were widespread reports of China's struggles to hit ambitious PV targets, particularly with distributed projects. Beijing-based solar expert, Frank Haugwitz, reveals the difficulties Chinese developers experienced

In January 2013 the National Energy Administration (NEA) of China officially announced an annual target of a minimum of 10GW of solar PV power generation capacity to be installed between 2013 and 2015. The same year, China installed an impressive 13GW – not only more than any other country in a single year ever before, but also exceeding by 3GW the official target.

Reasons why China exceeded its minimum target by 30% are fourfold. First, projects put up for tender during Q4/2012 were not facing any feed-in tariff (FIT) reduction as Q4/2013 projects did, thus these projects were executed in 2013. Secondly, in November 2012 central governmental institutions approved the last batch of so-called Golden Sun projects amounting to 2,834MW. Accordingly, the deadline of these projects was 30 June 2013, but eventually was extended twice until the end of 2013.

Thirdly, in August 2013 the National Development and Reform Commission (NDRC) and the NEA announced the

approval of 1,823MW of so-called 'solar PV distributed generation demonstration projects' out of which 793MW of projects were scheduled to be realised by 31 December 2013. Fourthly, in August/September 2013 new 10% lower FITs effective from January 2014 onwards were announced, triggering a year-end rally and leading to an impressive 6-7GW of executed installations in Q4/2013 alone. By the end of 2013 China's total installed PV power generation capacity amounted to approximately 19.4GW, according to NEA figures.

During the first weeks of January last year various Chinese central governmental entities were quoted as having announced different solar PV deployment targets for 2014 ranging from 8 to 14GW. Eventually, the NEA finally announced a 14.05GW target, divided into 8GW (distributed generation) and 6.05GW (utility-scale, ground-mounted) to be installed in the course of 2014. The government's direction to promote distributed generation versus utility-scale projects is obvious;

Distributed solar fell short of deployment targets in China in 2014.

given its approximately 60% share of 14.05GW, as well a moderate growth of approximately 8% year-on-year, this was clearly considered to be more sustainable.

Importantly, for the first time, the NEA released a breakdown of the 14.05GW national annual target into individual provincial targets, which were further divided into both types of project categories (distributed and utility-scale). The purpose of the annual target breakdown was to underline the central government intention to guide the overall market development, as well as to avoid more PV power plants being subject to grid curtailment in western provinces such as Gansu, Qinghai and Xinjiang in particular.

To take Gansu Province as an example, in 2013 it was the most favoured destination across China with 3,842MW additionally installed PV power generation capacity. The same year the solar curtailment rate in Gansu was on average 13.78% according to generation companies, compared to just 5.49% claimed by the Gansu grid company. Against this

background, it did not come as a surprise to see Gansu's 2014 target being set at just 500MW (utility) and 50MW (distributed), which basically is a reduction of approximately 85% year on year. Latest figures suggest that in 2014 approximately 700MW were installed.

The National Energy Administration's announcement to aim for 8GW of distributed solar PV in 2014 was met with some scepticism by the Chinese solar PV industry, due to the fact that in 2013 out of the 13GW installed in total merely 800MW of projects were considered 'distributed', thus the NEA aimed for a tenfold increase in a single year. In an attempt to ensure realisation of this 8GW target, in early February 2014 the NEA released a list of 81 so-called 'new energy demonstration cities' and eight so-called 'industrial demonstration zones' spread across 28 and eight provinces respectively. Accordingly, by the end of 2015 these cities and zones are required to realise their respective mandatory targets in terms of, for example, an X amount of megawatts of PV installations and/or an X% share of installed renewable energy power generation capacities.

Slow going for distributed projects

Chinese project developers supported the government's drive towards distributed generation. However, given the prevailing administrative, financial, technical, and operational complexity of distributed solar PV compared with large-scale ground mounted projects it did not come as a surprise that in the first nine months of 2014 distributed solar installations fell very short of its expectations. According to NEA figures, between Q1 and Q3 just 2.45GW of utility-scale and 1.34GW of distributed solar PV projects were realised.

There were a number of reasons explaining why distributed solar PV installations experienced a rather slow development: the average lifetime of buildings not matching a business model based on 20 years of FiT payments; identification of roof ownership; the quality of roofs in too many cases not being good enough for rooftop systems; the favoured self-consumption model by NEA assuming that 80% of the self-generated power would be consumed on-site with the remaining 20% sold at a lower tariff to the grid, when reality showed that the self-consumption ratio was well below 80% thus causing a negative impact on projects' financial viability; contractual risks in case of ownership transfer of the

buildings; and the perceived risks among local financial institutions making it challenging to mobilise the required funding for such projects.

Given the myriad constraints hampering a fast and smooth execution of distributed projects across China, industry and governmental representatives between March and August last year frequently met, in order to discuss how a fine-tuning of corresponding policies could ensure a removal of the main barriers. As a result of this consultation process NEA published its distributed solar PV policy update on 2 September.

"Given the complexity of distributed PV, it did not come as a surprise that in the first nine months of the 2014 distributed solar installations fell very short of expectations"

The 'new' policy was considered fairly comprehensive and sufficiently detailed allowing distributed projects to be developed at a much faster pace than before. Relevant responsibilities were identified and allocated accordingly. The emphasis on 'quality' and the planned establishment of a nationwide monitoring and reporting system certainly adds pressure to developers and for example EPC service providers to ensure that installed systems deliver a high performance on a long-term basis.

Meanwhile, NEA's encouragement that all administrative levels shall implement further financial support policies will undoubtedly increase the financial viability and stimulate demand. As of today, at least two-thirds of all provinces in China are offering additional financial incentives, for example in the form of an additional tariff per kWh, capital subsidies for the procurement of the hardware, or both. Generally such additional incentives are designed to promote distributed solar PV. In addition, several local governments pursued a local content requirement policy, i.e. additional local financial support was provided as long as a fairly significant share of goods were locally procured. In an official notification released by NEA in October such practice shall be abolished as it was felt to be holding projects back.

The new policy will certainly require

time to bear fruit and it remains to be seen how much China was able to install in Q4 last year. An indication for sustained demand is that in October the NEA granted the Southern Xinjiang Autonomous Region permission to install an additional 1GW, taking that region in total to 1.85GW. Apparently the provincial targets set earlier last year were not set in stone.

In addition there is a 'new' definition of distributed projects; since September projects up to 20MW including ground-mounted applications in specific areas like fishponds, agriculture, mountain slopes, tidal zones, etc. feeding into the mid-voltage (35kV) grid have been included in the category of distributed systems, which thus allows projects prior to the policy announcement classified as utility-scale now to 'migrate' into the distributed category. Such a migration of projects has the potential to 'add' an estimated 1.5 to 2GW of projects to the NEA's desired share of distributed projects and could result in overall distributed solar projects amounting to approximately 4GW.

On December 25, China's NEA held its annual national energy conference in Beijing and its now former head, Mr Wu Xinrong, announced that by the end of 2014 China's total installed and grid-connected solar PV power generation capacity amounted to 30GW. This statement implies that last year's installations were at least 10.5GW taking into account that by the end of 2013 NEA announced a total installed capacity of 19.4GW.

Given that the announcement was made before the end of the year the author of this article believes there "is room for more", i.e. in light of AECEA's project demand monitoring that a 12GW appears to be feasible. This would mean the share of utility-scale projects increased from the 6GW initially set in 2014 to up to 8GW. ■

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