

Taiwan's PV industry seeks transformation in hard times

Business | For the past two years, Taiwan's PV manufacturers have been weathering a heavy storm prompted by shifting global demand for their wares. But as Carrie Xiao reports, government efforts to stimulate a local end market for PV is proving to be a potential lifeline

Over the past two years, Taiwan's solar industry has been thrown into a gloomy and painful period amid changes in both PV manufacturing capacity and a shifting competitive landscape, especially for cells. Leading companies once providing the world with high-quality cells have been struggling with losses and are undergoing restructuring, while Taiwan's achievements in wafers and ingots have gradually been overshadowed by companies in mainland China. As a result, Taiwan's wafer and cell shipments have plummeted with most enterprises being eliminated, phased out or transformed. The PV industry is filled with frustration.

In order to facilitate a stable transition for the struggling PV industry, the Taiwanese government has released a series of revitalisation policies. Plans such as The Electricity Act, Energy Development Guideline, Renewable Energy Development Act and so on, hope to boost Taiwan's PV industry by raising the proportion of renewable energy use and developing local end-markets.

On 12 April 2019 the revised Renewable Energy Development Act was approved by Taiwan authorities, setting the goal of deploying more than 20GW renewables by 2025. Power sources will be distributed among gas (50%), thermal power (30%) and renewable energy (20%).

These new policies have improved Taiwan's solar market environment to a certain extent, especially in the utility-scale end market, where the changes in installation can be clearly seen. By May 2019, the total installed PV capacity in Taiwan reached around 3.3GW.

The new progress has prompted many renewables enterprises and PV companies in Taiwan to initiate a strategic transformation and shift in positioning.

Transformation in pain

Taiwan's cell production ranks among the top in the world, but its module capacity



is small. Many solar companies began to transfer to module manufacturing as these policy changes mentioned above created domestic demand.

The Taiwan Solar Energy Corporation (TSEC) says it boasts the largest PV module capacity in Taiwan, standing at 800MW currently, which it plans to increase to 2GW by 2020. While two years ago, the company's main business was cells. In 2018, its cell capacity was 2GW.

TSEC vice president Henry C.H. Chiang tells *PV Tech Power*: "Due to the increased competition in the mainland cell market, we are shifting our focus to modules. Through transformation last year, we have delivered 100MW modules in 2018 and are expecting further module expansions in 2019. To avoid homogeneity, we are producing differentiated modules."

Most of TSEC's customers in the past have been mainland Chinese companies. After the strategic adjustment, TSEC is

Taiwanese PV equipment manufacturers such as URE are turning to project development in the face of falling international sales

striving to avoid being continuously impacted by mainland China.

"At present, we find our main business opportunities in Taiwan. Taiwan's solar companies in the past two years were having a hard time," says Chiang. "We are making adjustments and the local government has also contributed some positive ideas to support PV industry development in Taiwan; this is an opportunity for us."

Apart from cell and module manufacturing, TSEC's management team is also very interested in and has participated in the power plant business, with 300 projects under its belt as an EPC.

In comparison to the independent stand of TSEC, the United Renewable Energy Cooperation (URE), jointly established by Solar Tech, Gintech and NEO, showed the attitude of Taiwan PV players and regional governments towards the industry.

URE completed the merger nine

months ago and its main business segments are divided into three sections: cell (2.47GW/year), module (850MW/year, including 400MW in Vietnam) and PV power plant systems. In May this year, the company released the 144-cell 1,500W PEACH 400W high-efficiency solar module series, setting up efficiency cell standards in Taiwan.

The system section has also gradually established its core competitiveness. So far cumulative projects connected to the grid have exceeded 569MW and its project pipeline has almost reached 1GW.

President of URE's module business, Andy Shen, says: "Compared to the goal of cumulative installed capacity of 20GW by 2025, Taiwan's installed PV capacity is still small at present. We expect many rooftop and ground-mount plants to enter construction this year. The industry will also speed up in the next few years."

According to the financial data of URE, in May 2019 the company's revenue reached NT\$2.29 billion (US\$73.6 million), a 12.9% increase over previous months and a 136.6% year-on-year increase, signifying a positive development trend. The company also set up a new business unit this year to develop energy storage solutions.

When talking about future development, Shen says: "We are a company rooted in Taiwan but we are expanding into the world market."

Echoing his comments, Sascha Rossmann, vice president of WINAICO's solar division says: "If companies in Taiwan are to have more room to survive and thrive, they need to tap the local market and open up international markets."

WINAICO's PV business mainly includes module and system integration. In addition to seeking cooperation with local players, the company is also striving to develop European and Australian markets.

Rossmann expects strong growth in its Australian EPC business this year. At the same time, WINAICO has established business ties with more than 20 countries in Europe. Markets in countries such as Italy and Poland are getting stronger and module shipments in future are bound to increase.

These moves show that Taiwan's solar manufacturing industry is migrating from mid-stream to downstream businesses, with these players transforming from commercial cell manufacturers to module sellers and flexible integrated plant developers.

Power subsidies fallen by 60% in a decade, new trends in power market

Over the past decade, the feed-in tariff (FIT) in Taiwan has declined sharply, dropping by more than 60% (see chart below). The FIT for some PV systems is already lower than that for utilities, which would be highly competitive if traded on a free market.

The Renewable Energy Development Act will push Taiwan to phase out the FIT subsidy and introduce liberalised power transactions in the renewable market.

According to this law, major users of more than 800kW must have 10% of their power supplies from renewable sources, which means the needs of intensive users are expected to reach 16TWh, requiring about 12GW of PV power projects.

Nan Ya Photonics INC (NYPI) marketing director Esther M.S. Lin says: "The 10% requirement on big electricity users has created a rigid demand for renewable energy certification under the Taiwan Renewable Energy Certification scheme (T-REC)."

NYPI is mainly engaged in the solar EPC business. It has already completed 3.74MW of PV EPC projects. Lin says that in future the company will also take on more EPC projects. Lin considers that PV needs will be driven up first in areas with higher industrial power prices, such as Hsinchu, Taoyuan, Taichung and Kaohsiung, among others.

T-RECs act as proof of the use of green power. Upon certification of the Taiwan regional inspection bureau, every thousand kWhs of green electricity used is exchanged for one renewable energy voucher.

These vouchers can be used either by the holder itself or be traded with customers in need. The price is to be determined by the free market. In addition to signing wholesale power contracts with Taiwan Power Company for sale to other green power plants, all power plants holding renewable energy certificates can sell power and the

voucher together. The earnings consist of the power part and the voucher part. Voucher price is also determined by the free market. The market is in short supply at present.

KH Chen, managing director of Sinogreenenergy, is keenly aware of the policy adjustments and changes in the market. As a team leader, he made a decision to add electricity sales business to his company's activities.

As a leader in Taiwan PV power industry, Sinogreenenergy is mainly engaged in power plant development, operation and EPC service. At present, its power plants already connected to the grid have reached 149.4MW with 40MW under construction and a further 109.8MW of projects in the pipeline.

Chen says: "The 2017 Electric Act proposes to allow private renewable power suppliers and retailers to sell power and T-REC directly to consumers. Amendments to the 2019 Renewable Energy Development Act have made it clear that power suppliers can sell electricity back to Taiwan Power Company at a fixed rate for 20 years. A new electricity market business model will be built, which is a new career and business opportunity for us."

On the other hand, Power Master Group, which is also deeply rooted in power plant and EPC service business, has made many attempts in exploring power plant business models and application models. In the past two years, they have been actively promoting the construction of agrivoltaic plants.

Chairman of Power Master Group Tsai Tsung-Jung says: "Over the past few years, we have completed more than 1,000 plants on government buildings, factories, farms, ground-mount plants and agrivoltaic rooftop plants. The total installed capacity reached 336.80MW, of which 140 (51MW) are agrivoltaic projects and this segment will continue to grow in future."

In view of the positive attitude of government and enterprises in Taiwan, it can be expected that in the near future, the market for liberalised solar power transactions in Taiwan will grow fast and PV power generation will become a direct beneficiary of the rise of this market.

The increase in PV installations will also help Taiwan's cell and module manufacturing industry to break through recent hard times. We are looking forward to hearing more positive news from 2019 Energy Taiwan Expo to be held in Taipei this October.

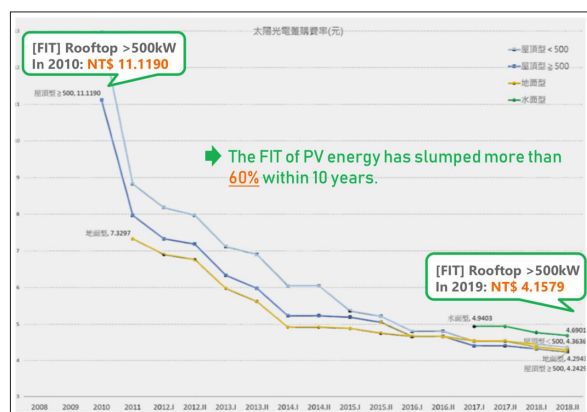


Figure 1. The declining FIT curve over a decade in Taiwan.