

Development of PV Production Equipment Business

Tokyo Electron is strengthening its PV production equipment business as the new pillar of its business strategy, thereby contributing to the creation of a low-carbon society.

The Tokyo Electron Group and its PV Production Equipment Business

Solving the problem of climate change and global warming is one of the most pressing tasks for humanity today. We need to shift from being dependent on fossil fuels to becoming a low-carbon society by utilizing renewable energy. Renewable energy is expected to make a significant contribution to the prevention of global warming because it can be used almost perpetually, while emitting fewer greenhouse gases than current mainstream energy sources. PV power generation using solar energy is the leading type of such renewable energy. However, in order for this green energy to come into common use, further technological innovation and cost reduction are necessary to overcome the current challenges related to cost and efficiency, such as increasing the efficiency of converting solar energy to electricity and overcoming the shortage of materials to produce related equipment.

The Tokyo Electron Group set up a joint venture company with Sharp Corporation (Sharp) in February 2008 to begin cooperative development of plasma CVD systems for use in thin film silicon PV cells. In February 2009, we also entered an exclusive sales representative agreement with Oerlikon Solar Ltd. (Oerlikon Solar)* for end-to-end thin-film silicon PV production line and equipment in the regions of Asia and Oceania. The Tokyo Electron Group is also engaging in its own independent development of technology. Based on our belief that we must employ technology to tackle environmental issues, we are striving to make the PV production equipment business the third pillar of our Group, following the semiconductor manufacturing equipment and FPD production equipment businesses.

***Oerlikon Solar Ltd.:** One of the world's top manufacturers of end-to-end thin-film silicon PV production lines and equipment. Oerlikon Solar equipment has manufactured more than 800,000 thin-film silicon PV panels around the world. Oerlikon Solar is known for its outstanding, reliable performance. Oerlikon Solar's end-to-end production line of thin-film silicon PV provides its customers with the shortest delivery time and the most appropriate PV production capacity.

Strengthening the PV production equipment business

Tokyo Electron's business expansion

SHARP Joint development with Sharp

- Plasma CVD systems for use in thin-film silicon PV cells
- Tokyo Electron: Joint development, manufacturing, and sales

oerlikon solar Collaboration with Oerlikon Solar

- End-to-end production line for thin-film silicon PV cells
- Tokyo Electron: Sales representatives in Asia and Oceania

TOKYO ELECTRON Independent development by Tokyo Electron

Sales Representative Agreement with Oerlikon Solar for PV Production Equipment

Tokyo Electron entered into an exclusive sales representative agreement for end-to-end thin-film silicon PV production equipment in the regions of Asia and Oceania, and began the sales and support of the end-to-end thin-film silicon PV production line and equipment.

PV is now the focus of attention as a solution to current issues related to the environment and energy conservation. In the future, the PV market is expected to expand globally. The Asian market, in particular, can expect the largest growth.

We are determined to provide our customers with the equipment and support they need through our partnership with Oerlikon Solar, the world's top manufacturer of end-to-end thin-film silicon PV production lines, and by utilizing our strengths in terms of technology and service support.



Oerlikon Solar's KAI PECVD system boasts of outstanding processing capability and operation time.



Oerlikon Solar's Fab 1200 is a complete end-to-end PV production line



Takashi Ito

Senior Vice President
General Manager, PVE BU
FPD/PVE Division
Tokyo Electron Ltd.

We are striving to contribute to a low carbon society by strengthening our PV production equipment business, while delivering new technical innovation.

The PV business is still in its initial development stage and a business model has yet to be built. In the PV business market, where various companies are creating new technologies, we have focused on the thin film silicon PV, for which technical innovation is expected that will ensure stable supply in the future while reducing costs and improving conversion efficiency. Tokyo Electron signed an exclusive sales representative agreement in February 2009 with the Switzerland-based company Oerlikon Solar for thin-film silicon PV production equipment in the regions of Asia and Oceania. The company has sophisticated technology for PV development and processing. We believe that this partnership with Oerlikon Solar, the top maker of thin-film silicon PV production equipment, will enhance our global competitiveness.

In forming an alliance with Oerlikon Solar, we recruited engineers and sales people within our company. As a result, we were able to draw together employees that were highly motivated and proud to work for a new business directly related to the environment. The expectations within our company towards the new business are high; and we have already begun to receive orders, providing us with a greater understanding of the demand in Japan and other parts of Asia.

Moving forward, we will try to achieve a low carbon society by providing the highest quality products and services, while drawing on the sophisticated technologies of Oerlikon Solar and the unique know-how and technologies of Tokyo Electron's equipment businesses.



Jeannine Sargent

CEO
Oerlikon Solar Ltd.

Join Forces for a Bright Solar Future

Oerlikon Solar's mission is to make solar power an economically viable alternative to conventional sources of electricity. In order to reach this goal in the near future, all R&D efforts are being dedicated to raising efficiencies while driving down the production costs of thin film silicon solar PV modules. Identifying partners that offer synergies and joining forces is one of the mayor keys to achieving this goal.

In Tokyo Electron we have found such a partner!

Our partnership is based on TEL's extensive sales and customer support network in various geographies, semiconductor experience and highly respected market leadership; and on Oerlikon Solar's proven, industry-leading PV technology. This strategic cooperation is creating a new solar powerhouse, unlocking the enormous potential of the Asian solar PV market. By forming this cooperation with TEL, Oerlikon Solar will be able to provide its customers with outstanding equipment and support, while drawing upon the knowledge and technology acquired in the semiconductor and FPD production equipment markets. Together, TEL and Oerlikon will promote and expand the adoption of thin film silicon PV technology in Asia, Oceania and Japan, areas which are already leading in solar adoption and export.

While the viability of Oerlikon Solar's equipment and end-to-end solutions receive growing attention from customers around the globe, potential high growth markets such as Japan, Taiwan or Korea are showing enormous interest in Oerlikon Solar's leading edge technology. These markets can be precisely addressed by such a well respected company as TEL. The global footprint of TEL's sales and customer support teams provide a platform for the substantial growth of Oerlikon Solar's leading thin film silicon solar PV technology, leading to a win-win situation for both companies.

Both companies are well positioned for the growth of this industry. With this strategic partnership we are reinforcing our regional sales and customer service structures, and providing TEL with leading-edge PV module production technology.