

Development of the PV Cell Production Equipment Business

Amid growing public expectations for renewable energy, the Tokyo Electron Group has announced the launch of a PV cell production equipment business.

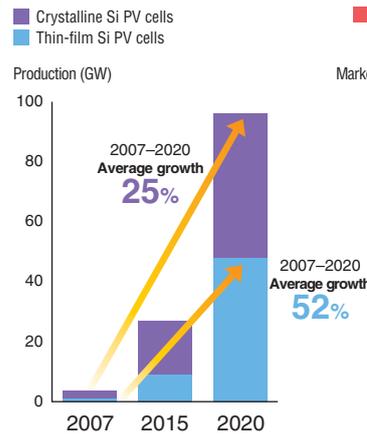
What is PV Power Generation?

Solving the problem of climate change and global warming is the most pressing agenda for society. 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 significant contributions toward preventing global warming as it can be used semi-perpetually while emitting less greenhouse gases than current mainstream energy sources.

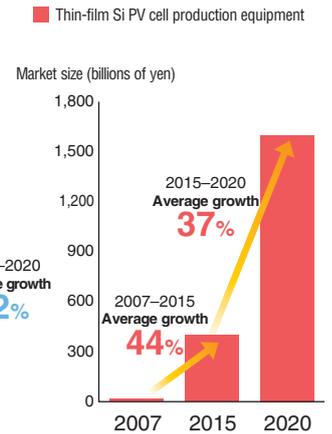
PV power generation using solar energy is the leading player of such renewable energy. However, further technological innovations and cost reductions are necessary for common use of this green energy in order to overcome present challenges, such as increase in energy conversion efficiency (from solar energy to electricity), shortage of materials to produce related equipment, and cost/efficiency issues.

The Group has started the PV cell production equipment business with a strong commitment to making contributions to environmental solutions through our technological excellence.

PV Cell Production



Thin-film Si PV Cell Production Equipment Market



Source: TEL's calculations based on the power demand forecast.

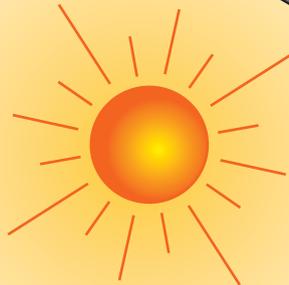
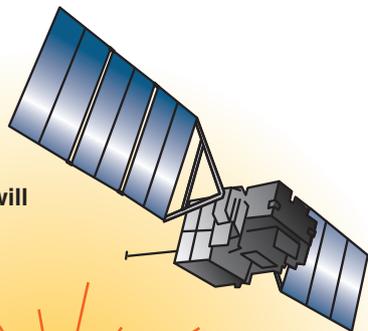
PV Cell Business at the Tokyo Electron Group

Following an extensive period of basic research, the Group has decided to start a PV production equipment business.

TEL agreed with Sharp Corporation ("Sharp") to launch a joint venture, Tokyo Electron PV Limited, which will specialize in the development of commercial plasma CVD systems for use in thin-film silicon PV cells. (Please note that this agreement pertains only to plasma CVD systems for thin-film silicon PV cells: it is not an agreement on a comprehensive partnership on FPD production equipment and other operations.)

Thin-film silicon PV cells, containing a thin layer of silicon deposited on a glass substrate, is a type of solar cell that has attracted significant interest in recent years. We aim to develop higher productive plasma CVD systems for thin-film silicon PV cells by combining the Group's experience and expertise in vacuum plasma technology applied to the mass production of semiconductors and FPD production equipment, with technology for thin-film silicon PV cell production that Sharp, a leading company in PV cell production, has built. The development of such CVD systems will be conducted by the new joint venture of the Group and Sharp, and production and sales will be conducted solely by the Group. We intend to introduce the first model to market in 2009.

With technological innovation, PV cells will be applied across broader areas



We will strive to achieve worldwide use of solar energy to help solve environmental problems.



Mitsuru Onozato

Senior Vice President
General Manager
FPD/PVE Division
Tokyo Electron Limited

I feel climate change is happening—with greater intensity.

We at the Tokyo Electron Group have made up our minds to make a fundamental difference in society through our main business by using our reservoir of excellent technologies. We documented this commitment in the TEL Missions (see pages 6 and 7). The PV cell production equipment business is the first step we have taken to materialize these missions. Out of a variety of production methodologies to produce PV cells, we will develop plasma CVD systems for thin-film silicon PV cells.

The objective of this new business is to develop PV cells with great power efficiency and to make them available worldwide at affordable prices. We are confident that we can make this happen by combining the technologies of PV cell leader Sharp Corporation and our manufacturing processes and equipment technologies steadily built on the back of development of semiconductor and FPD production equipment.

Looking toward the upcoming launch of joint development in full force, the two companies share a strong passion and commitment to developing excellent PV cells.

For TEL, semiconductor business is well within our expertise. Our extensive experience tells us the best road to take in terms of everything from business models to people's mindsets in addition to responding to the expectations of society.

In contrast, energy-related business is unknown territory for us. We are bracing ourselves for a totally new world, from technical elements of PV cell production equipment to target markets and collaboration with policymakers on electric power and with partners in developing countries.

Nonetheless, we have taken a bold initial step looking well into the next decade. We do not consider this PV cell production equipment business as a spin-off of our existing semiconductor and FPD businesses. Rather, we intend to grow this PV cell production equipment business under the long-term goal of creating another mainstay business that represents our new corporate DNA.

Sunlight is an energy source that everybody on this planet can benefit from equally. Whether you are in a developing or developed country does not matter. We hope to see the creation of a low-carbon society where people all over the world, including in developing countries, use PV cells manufactured with our equipment. We will work tirelessly toward achieving this goal.

Toward a low-carbon society, we look to TEL's reservoir of production equipment technologies.



Tetsuroh Muramatsu PhD

Executive Officer
Group General Manager
Solar Systems Group
Sharp Corporation

Since 1959 when we began our R&D efforts on PV cells, we at Sharp have devoted about half a century to making this new energy source one that can be used by more people and in broader areas. In addition to our long-standing focus on crystalline PV cells, we have been focusing our R&D efforts on thin-film PV cells and the expansion of related business.

Producing thin-film PV cells requires a volume of silicon 100 times less than its crystalline counterparts. These products do not lose the capacity to generate power even at high temperatures. Their major target markets are the United States and European countries for use as electricity power sources.

Another important strength is the short production process. Plasma CVD systems hold the key. Each unit of PV cells produced within plasma CVD systems will substantially determine whether or not a technological breakthrough can take place, resulting in higher energy conversion efficiency and substantially lower prices of thin-film PV cells.

To date, we have produced plasma CVD systems at our own facilities. To achieve mass production and further improve performance of the systems, we have agreed to work together with Tokyo Electron, a leader of semiconductor and FPD production equipment business with sophisticated technologies and a company with profound understanding and a solid strategy centering on the future of PV cells.

At our new factory currently under construction in Sakai City, Osaka, we plan to install these plasma CVD systems. In the initial phase, we will aim for a 480 MW output level. Our eventual target is global output of 1 GW by operating additional overseas plants.

According to a forecast by the European Renewable Energy Council (EREC), global electricity demand will double from the current level by 2040, about 25% of which will be generated by solar energy. I believe that a combination of Tokyo Electron's equipment technologies which have been built over many years and Sharp's thin-film PV cell technologies will help our society move one step closer to becoming "low carbon."