



Taiwan Encourages Solar Industry

The solar industry in Taiwan started in 1987 with the production of amorphous silicon cells. The solar industry experienced an investment boom in 2003 as a result of the market demand in Europe and Japan. Startup companies began forming the various links of the supply chain in the solar industry, such as wafers, cells, modules, and system installation.

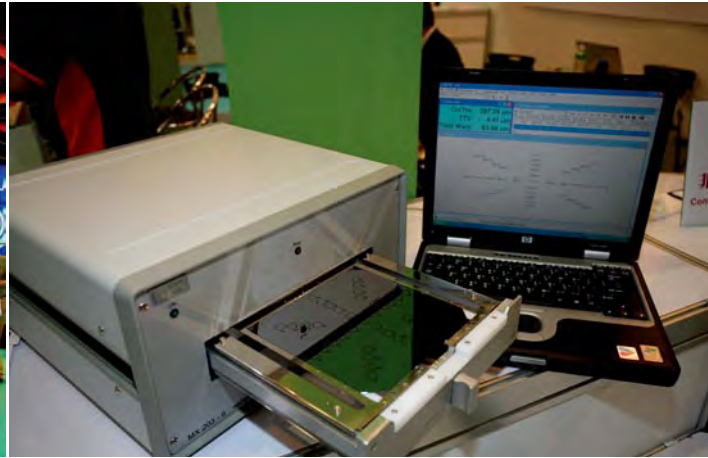
The PV industry in Taiwan has shown rapid growth in sales revenue, and IEK/ITR reported that revenue in 2007 reached USD1.7 billion (USD1=NT\$32). It estimated revenue would reach over USD3.1 billion in 2008, USD4.7 billion in 2010 (6% global share), and USD12.5 billion in 2015 (7% global share).

Investment in the PV industry in Taiwan is still a hot topic. PV companies in Taiwan are expected to expand their total production capacity to over 2 GWp in 2008. Although some existing companies are suffering from a shortage of poly-

silicon, newcomers are still expected, and there will be new investments, particularly in thin film solar cells including silicon thin films, CIGS, and CdTe.

Taiwan has showed remarkable performance in global markets. In fact, the cell production for 2007 achieved 360 MWp, placing Taiwan 4th in global output. PV News reported that Taiwan had a global share of 10%, with Motech achieving 176 MWp in production capacity, thereby ranking 6th worldwide in production (after Q-cell, Sharp, Suntech, Kyocera, and First Solar).

Since Taiwan's solar cell industries are facing a shortage of poly-silicon, companies such as CPC, Taiwan Polysilicon Co., Universal Semiconductor Co., and Muto Silicon Co. have announced they will go into the business of poly-silicon production. These enterprises will need some years for such a transition to be successful and fully operational.



The supply of solar wafers is the major business of companies such as Green Energy Co., Sino American Silicon Products Co., and Wafer Works. Mospec Semiconductor Corp. has also started production. It is evident that cell production depends heavily on the supply of silicon.

expedite certain R&D procedures and will therefore result in cost reduction. ^{鮮乾} _{生蘭}
 (Source: the Department of Investment Services, MOEA, www.pvtaiwan.com/)

Crystalline silicon solar cell industry

The supply of poly-silicon is the major concern for wafer manufacturers in Taiwan. Wafer suppliers MEMC, Hemlock, Solargiga, and DC Chemical are the main sources for Green Energy, Sino American, and Wafer Works with total demand of over 700 MWp. The solar cell business dominates the solar industry in Taiwan, both in crystalline solar cells and thin film solar cells.

The investment in Si solar cells began in 2004 with turnkey solutions from Germany. The total production capacity reached a historic record of 1.7 GWp for crystalline cells and 198 MWp for thin film solar cells. Module capacity was around 228 MWp in 2007. The total capacity of Taiwan's PV industry is estimated to reach over 4 GWp in 2010.

The production of equipment and facilities in the solar industry are capital intensive. In 2004, more than 12 companies started activity in the production of solar cell equipment. They focus on the development of diffusion furnaces, cutting machines, etching stations, plasma etching machines, IR back furnaces and laminators. Cooperation with foreign partners in technology development will help





LED Industry Lights Up in Taiwan

Taiwan's LED output ranks No. 1 worldwide in terms of volume and No. 2 in value, and is continuously expanding mainly due to increasing deployment of LED backlights in displays, according to a statement by the Photonics Industry and Technology Development Association (PIDA).

The global downturn that set in at the end of 2008 caused a market slump and a decline in revenue generated by Taiwan's LED industry. However, estimated revenue from Taiwan's LED industry still hit US\$ 2.5 billion in 2009, which was 3% higher than the previous year.

Taiwan's LED industry comes out ahead

Since the beginning of 2010, strong LED demand from consumer electronic products, led by LED backlit TV, has taken the industry by surprise. Analysts forecast that Taiwan's

LED industry will generate US\$ 2.7 billion in 2010, with LED chip production breaking US\$ 1 billion and packaging rising to about US\$ 1.7 billion.

It is also forecasted that Taiwan's LED industry will do even better in 2011, with year-on-year revenue growth of 18%.

Applications in displays and illumination will grow

The number-one application for Taiwan's LED products is mobile phones, with a 37% share of total revenue, followed by electronic devices, accounting for 32%, according to PIDA.

Analysts forecast that continued growth for the next few years will be generated by the deployment of LEDs in signs/displays and illumination. The signs/displays application accounted for over 20% of total LED sales in 2009, and achieved 5% revenue growth compared with 2008, while the

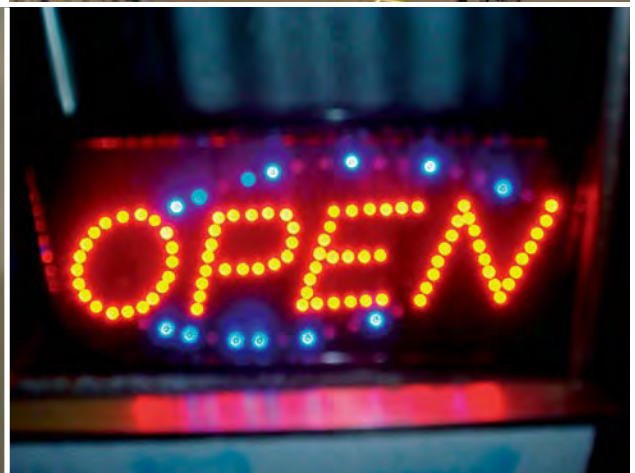
share of LED illumination increased to 7% in 2009 from 5% a year earlier.

LED costs will drop as Taiwan's LED epitaxy/chip makers expand

Although Taiwan products are already known for their high quality at fair prices, LED costs will drop as Taiwan's LED epitaxy/chip makers expand.

Many Taiwan LED epitaxy/chip makers are planning to expand their capacity this year to meet the rising demand, which, according to industry sources, is 20% to 30% above existing LED supply.

The fast-growing LED market has also caught the attention of leading semiconductor companies. Clark Tseng, senior market analyst at SEMI Taiwan, said, "We do see some similarities of the LED industry to the early stages of the semiconductor industry. The LED industry is set to enter the growth stage of its life cycle. We expect to see more global firms enter the LED industry supply chain, and this will help to bring down costs and improve productivity." 餅乾王舖



Taiwan's Electronic Component Industry Forecast to Have a Bright Future



Taiwan's electronic component industry is on its way to having a bright year in 2010, with its output value forecast to grow 25% from last year to US\$25.4 billion (USD1=NTD32), according to the Industrial Economic and Knowledge Center (IEK) of the government-sponsored Industrial Technology

Research Institute (ITRI). IEK said that the island's electronic component industry had shown strong signs of recovery in 2010 from the global financial crisis and that the industry would see continued growth throughout the year.



The Demand for Electronic Components Is Rising in Various Categories

Taiwan's electronic component industry is mostly composed of the compound semiconductor device, passive component, printed circuit board (PCB), connector, and energy component sectors.

The Center estimated the total output value of Taiwan's compound semiconductor sector in 2010 at US\$2.5 billion, increasing about 39% from last year. The Center attributed the growth to strong demand for LED TV backlight modules and LED lighting. The output value of Taiwan's compound semiconductor sector in the second quarter amounted to US\$0.78 billion, up 78% over the same period last year.

The output value of the island's passive component sector in the second quarter amounted to US\$1.2 billion, up 41.9% year on year. The Center estimated the annual output value of the island's passive component sector in 2010 would grow approximately 18% from last year to US\$4.11 billion. The Center said that

seven factors seemed to be the driving force behind the growth: replacement of older PCs with Windows 7 PCs, replacement of analog TVs with digital TVs, releases of iPad and iPhone 4G products, Mainland China's enlarged home appliances subsidy program for rural areas, replacement of USB 2.0 with USB 3.0, and growing penetration of smartphones in emerging economies such as Mainland China.

Taiwan's PCB industrial sector had production value of US\$0.33 billion in the second quarter of this year, increasing 0.34% from a year earlier. The Center attributed the growth to rising demand in China and the release of such new products as electronic books and tablet PCs. The Center projected the sector's 2010 annual production value would grow 28% from a year earlier to US\$11.34 billion.

Benefiting from the double-digit increase in shipments of notebooks, the production value of Taiwan's energy component sector reached US\$0.67 billion in the second quarter of this year, an increase of 27.8% from a year earlier. The Center said that

apart from applications involving notebooks and handheld devices, new applications such as those involving car batteries, electronic vehicles and new Apple products would contribute to the sector's future growth. 鮮乾 王儲
Source : www.taitronics.tw

