

CPV(Concentrated Photovoltaics) Technology and Market Forecast(2009-2020)

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Abstracts

The CPV (concentrated photovoltaic) technology started from the concept that inexpensive optical systems can be used to concentrate an equal amount of light as an attempt to reduce silicon consumption when the price of c-Si solar cells was very high in 1980 to 1990s

Concentrated photovoltaics mainly use III-V compound semi-conductor solar cells based on GaAs and InGaP. Due to direct band gaps, they have higher optical absorbance than existing silicon solar cells. Besides, covalent bonds lead to excellent properties. GaAs as a compound semi-conductor is proved to show high reliability even under extreme conditions in the field of semiconductor laser, which has a much more complex structure than solar cells. The biggest advantage of concentrated photovoltaics is that it is possible to remarkably reduce the price of power generation systems by drastically reducing the area of solar cell modules, which are expensive. They are aimed at remarkable reduction in the cost of power generation through low-cost optical systems.

Despite the global economic recession, the CPV market has continued to grow rapidly. For this reason, it is expected that there will be a rapid increase in installation from 3.5MW in 2009 to 505MW in 2012, and, with the steady growth, the total installation will reach 3.9GW by 2020. Comparing different types of solar cells, all solar cells will show increases in installation, but crystalline solar cells will decrease in percentage contrary to CPVs and thin-film solar cells (a-Si, CIGS, CdTe, DSSC, and OPV), accounting for 68.3%, 27.3%, and 4.4% respectively in 2020.

Figure. CPV installation market vs. other PV installation markets (2009~2020)

(Source: 'PV Technology & Market Forecast (2009~2020)' SNE Research)

SNE Research has published a report titled 'Concentrated Photovoltaic Technology (CPV) and Market forecast (2009-2020)'.

This report will examine the CPV technology and market trend, focusing on

Technology and price trends

Major patent analysis for each field

Company trend by technology

Global market forecast and forecast

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