

Materials for Next-Generation Photovoltaics – 2014-2021

<https://marketpublishers.com/r/MB3D9CC5626EN.html>

Date: September 2014

Pages: 0

Price: US\$ 3,295.00 (Single User License)

ID: MB3D9CC5626EN

Abstracts

The PV boom and bust has rebooted efforts to commercialize the next generation of materials platforms for solar panels. There has recently been a resurgence of the solar panel industry but many of the surviving firms are Chinese companies making conventional crystalline silicon (c-Si) panels. Also surviving is First Solar with its stable and ongoing production of CdTe.

With the solar panel industry now back on track, however, the search is on once more for materials platforms that improve the conversion efficiency of solar panels, both now and in the future. Some of these are close at hand – novel approaches to doping silicon panels are a good example here. Meanwhile, the thin-film PV sector is looking for its next success after CdTe. This could be CIGS, but there are also several other complex materials that are being developed for next generation thin-film solar and which are now beginning to receive serious commercial attention.

We are also seeing the solar industry beginning to think out of the box with a slew of entirely new nanomaterials such as quantum dots, nanowires, nanotubes and graphene. The commercialization of these materials for solar applications lies a few years off. But eventually they will offer radical new ways to boost the performance of the absorber, photoactive and electrode layers in next-generation solar panels.

In this report NanoMarkets develops a roadmap for next-generation solar materials and analyzes their revenue potential over the next eight years. The report includes a granular eight-year forecast of quantities shipped of these materials and revenues generated. The report also examines the commercialization strategies of the suppliers already actively involved in this space as well as the opportunities emerging for start-ups.

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