

# Perovskite Solar Cells: Materials, Fabrication, and Global Markets

<https://marketpublishers.com/r/PC86CDE0D51EN.html>

Date: January 2018

Pages: 144

Price: US\$ 1,250.00 (Single User License)

ID: PC86CDE0D51EN

## Abstracts

### Report Scope:

This report provides an updated review of various types of perovskite photovoltaic cells and their fabrication processes, and identifies current and emerging applications for these products.

BCC Research delineates the current market status for perovskite and other thin film solar modules, defines trends and presents growth forecasts for the next five years. The market is analyzed based on the following segments: solar cell type, application and region. In addition, technological issues, including key events and the latest process developments, are discussed.

More specifically, the market analysis conducted by BCC Research for this report is divided into five sections.

In the first section, an introduction to the topic and a historical review of perovskite solar cells are provided, including an outline of recent events. In this section, current and emerging applications for these devices are also identified and grouped according to six main categories (construction/ architectural, infrastructure, electronics, transportation, space and defense).

The second section provides a technological review of perovskite solar cells. This section offers a current and detailed description of fabrication processes for perovskite photovoltaic cells; typical materials used to produce these devices; cell configurations and efficiencies achieved in recent years; technological trends in device fabrication; and new and emerging fabrication methods. This section concludes with an analysis of the

most important technological developments since 2015, including examples of significant patents recently issued or applied for, as well as highlighting the most active research organizations operating in this field.

The third section entails a global market analysis for perovskite and other thin film solar modules. Global revenues (sales data in millions of dollars) are presented for each segment (solar cell type, application and region), with actual data referring to the years 2015 and 2016, and estimates for 2017.

The analysis of current revenues is followed by a detailed presentation of market growth trends, based on industry growth, and industry and regional trends. The third section concludes by providing projected revenues for perovskite and other thin film solar modules within each segment, together with forecast CAGRs for the period 2017 through 2022.

In the fourth section of the study, which covers global industry structure, the report offers a list of the leading suppliers and developers of perovskite solar cells, together with a description of their products. The analysis includes a description of the geographical distribution of these firms and an evaluation of other key industry players. Detailed company profiles of the top players are also provided.

The fifth and final section includes an analysis of recently issued U.S. and international patents, with a summary of patents related to perovskite photovoltaic devices, materials, fabrication methods and applications. Patent analysis is performed by region, country, assignee, patent category, device type and material type.

#### Report Includes:

33 tables

An overview of the global market for perovskite solar cells.

Analyses of global market trends, with data from 2015 and 2016, estimates for 2017, and projections of compound annual growth rates (CAGRs) through 2022.

Analysis of the market by product category, by application, and by region.

A look into the fields of application, e.g., utilities; building-integrated photovoltaics, or BIPV; portable devices; transportation; and off-grid

applications.

Description of the production processes, such as substrate types, and thin and thick film deposition methods, employed in the fabrication of these cells.

A summary of patents related to various types of perovskite solar cells, their fabrication methods and applications.

Descriptions of the geographic distribution of manufacturers and detailed company profiles of top industry players.

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