

Analyzing Organic Photovoltaics 2016

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Abstracts

An organic photovoltaic cell is a cell which applies organic materials for light absorption and subsequent charge transport which is aided by its core model of low cost, production scalability and flexibility at the molecular level. The fine process of chemical tuning is achieved in this by varying the lengths and functional groups of polymers which allows the management of the energy gap. Organic molecules however are also not completely bereft of their disadvantages as well.

Aruvian Research's report Analyzing Organic Photovoltaics earmarks the immense potential that this technology holds for the future of mankind and the crucial impact it will have on the process of introduction of solar energy into large scale arenas of the industrialized economies.

The report Analyzing Organic Photovoltaics initiates with a strong theoretical understanding of the Solar Cell system and their subsequent propagation into photovoltaic systems including their applications derived from generational leaps as first to third generation cells. The report presents the entire gamut of PV cells in a structured family tree for easy interpretation and also delves into the applications of PV Technology in isolated environment.

One of the critical factors affecting PV systems is nature and Aruvian Research's report also examines the effects of various factors as Sunlight, Weather, Temperature as well as cloudy weather. In this context the report provides a picture of the global markets for PV solar cells and the commercial aspect is explored in the profiling of the markets as well as the statistics as growth patterns on the production side. The report also explores the commercialization potential and future for the market for PV conditions.

The environmental impact of any technology system has also been examined even though Solar PV systems are as close to addressing environmental concerns as

possible through instances as a typical SWH system will, over its lifetime, displace 10.5 tons of CO₂ if replacing a natural gas system, or 71.5 tons if replacing an electric system.

The report also devotes an entire in depth section to the technical aspects of organic PV systems including their history as well as mechanism, general operation principles and the new innovations in architecture design of Organic PV cells which have opened up new markets for OPV systems. These are further explained in the efficient design choices of various donor and acceptor molecules and new ideas contributed in this field. The report also addresses a natural query of comparisons between Organic PV cells and traditional PV cells as also the factors which impact the production of organic PV cells. The organic PV systems are subjected to the efficiency factors as well as the cost factor in implementing these systems which are some of the challenges explained in this report to improving and fine tuning the performance of OPV systems.

The report further analyzes the processing techniques of Organic PV cells and various types of concentrators as well as antenna photovoltaic cells. In order to address the efficiency factors which impact the Organic PV systems the report examines the application on nanostructures to this with a complete overview on the two major techniques in use today. There have been efforts to increase the longevity of OPV cells with the application of Exciton Blocking layers being added in order to ensure maximum mileage from any system implemented.

The report also provides a comprehensive look into the US National Solar Technology Roadmap on Organic PV which communicates the intent and the thoroughness of effort being put by the US behind OPV technologies. The report further adds depth to practical understanding of OPV systems by providing two case studies on OPV cells. Leading industry contributors which have globally made an impact on this industry are also elaborated in this report.

Analyzing Organic Photovoltaics is a very comprehensive tool for understanding this technology in a in depth manner and deliver thought provoking views on the marvels of this field which is nature's helping hand lent to mankind in order to preserve a way of life which is sustainable as well as in sync with our environment.

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- V.3 Ascent Solar Technologies, Inc
- V.4 ASE Americas Inc
- V.5 Asia Silicon Co., Qinghai
- V.6 Atlantis Energy Inc
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- V.10 Central Electronics Ltd.
- V.11 China Solar Power (Holdings) Ltd.
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- V.18 Bosch Solar Energy
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