



MEDICAL DEVICES



PHARMACEUTICALS



CHEMICALS



FOOD & BEVERAGE



ELECTRONICS

Emerging Markets for Green Semiconductors

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F R O S T & S U L L I V A N



Market
Engineering

Emerging Markets for Green Semiconductors
Focus on biofuels and political and social instability hamper
market growth and penetration

March 2012

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Market Overview—Definitions

- Solar PVs are being called green semiconductors because they are able to harness the sun's energy in an environmentally friendly manner, thus providing a green energy solution.
- This study analyzes the solar PV market. The term “solar panels” has been used in some instances in reference to an arrangement of PV cells.
- This study covers Emerging Markets, including Central America, South America, Russia, the Middle East, and Africa.
- Currency used: U.S. dollar (\$)
- Study Period: 2007-2017
- Base Year: 2010
- Forecast Period: 2011-2017

Market Overview—Definitions (continued)

Solar Photovoltaic (PV)

PVs or PV cells are an array of photovoltaic material used to convert solar energy into direct current (DC). PVs can be classified as crystalline silicon (c-Si) and thin films. C-Si has a higher average conversion efficiency than the thin films. But thin films are popular in the market because of their low cost, owing to low manufacturing costs. End-user demand is approximately xx.x percent for c-Si and xx.x percent for thin films. Thin films are preferred in projects where the available installation area is large and the budget is small, whereas c-Si is preferred for smaller areas. The three types of c-Si are monocrystalline, polycrystalline, and ribbon silicon. The four types of thin films are amorphous silicon (a-Si), copper indium gallium (di)selenide (CIGS), cadmium telluride (CdTe), and microcrystalline silicon.

Feed-in Tariff (FiT)

FiT is a fiscal mechanism for promoting the development and deployment of renewable energy generation to meet a country's carbon emissions needs. It basically has three key elements: generation tariff (a fixed payment for every kilowatt-hour [kWh] of electricity generated), export tariff (a fixed payment for every kWh or electricity exported onto the national grid), and additional benefits (depending on the country). The FiT system was introduced in the United States in 1978.

Market Overview—Key Questions This Study Will Answer

Is the market growing, how long will it continue to grow, and at what rate?

What are the critical pressure points for this market, and what forms the core dependencies for it?

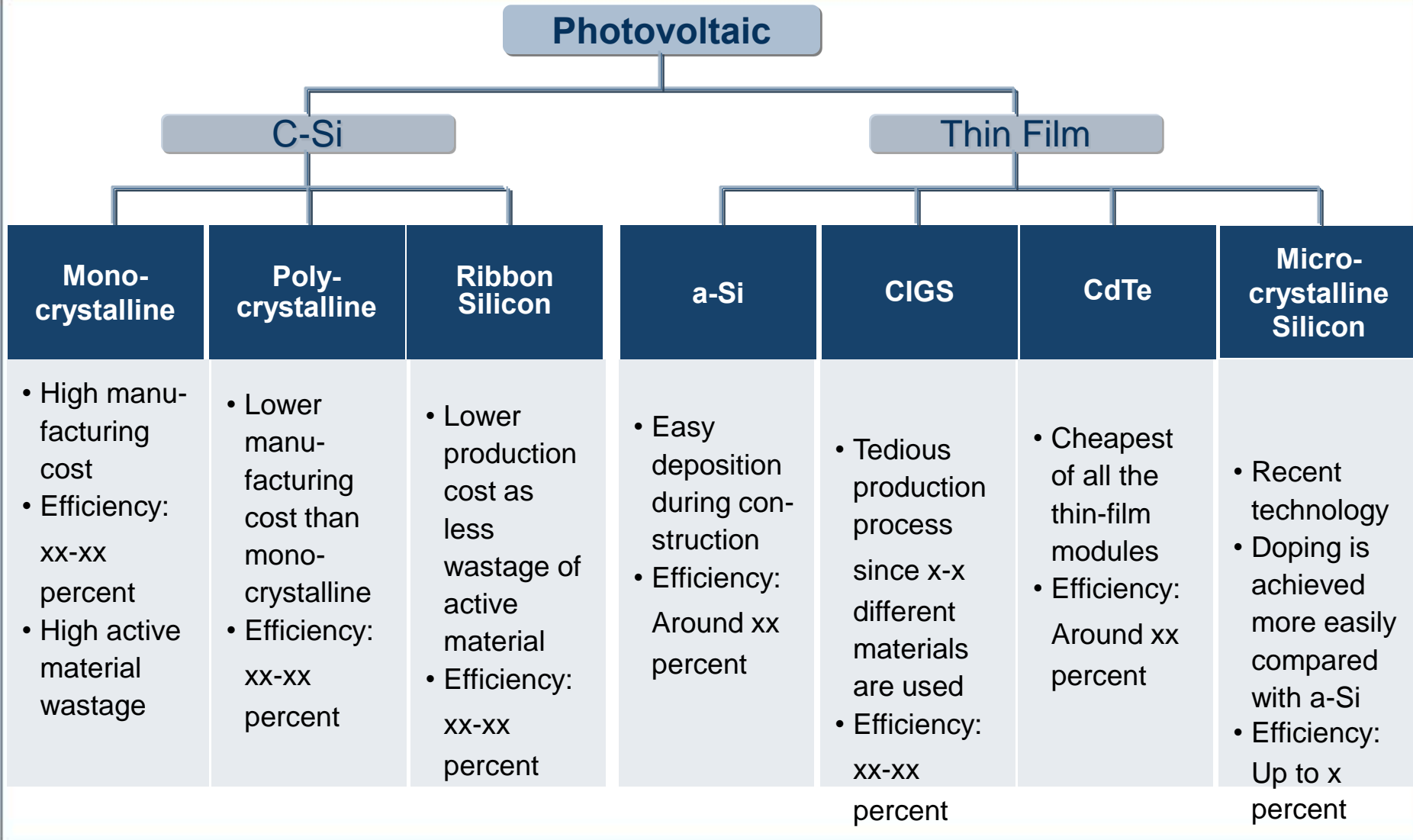
What are the relative energy economics, and how will PV modules stack against fossil fuels and other renewable energy sources?

What will be the state of the market in the coming years?

What will be the application and technological breakup of various segments in coming years?

What are the price analysis trends for PV modules and solar-grade silicon? How would they affect revenue and adoption numbers?

Market Overview—Technological Segmentation



Market Overview—Geographical Segmentation

