

## ***Crystalline Solar -- Markets Reach \$ 118.4 Billion By 2017***

LEXINGTON, Massachusetts (August 24, 2011) – WinterGreen Research announces that it has a new study on Crystalline Solar Panel Market Shares and Forecasts, Worldwide, 2011-2017. The 2011 study has 651 pages, 220 tables and figures. Crystalline is the largest of three solar energy technology markets. Crystalline is evolving a significant market presence and is expected to continue to be used in very northern or very southern climates where there is less sun. Sophisticated technology that works has achieved grid parity in many places.

Crystalline solar market have been able to grow rapidly because of the ability to capitalize on demand for high efficiency products at low cost per watt. Strong research and development capabilities have enabled development of advanced process technologies and manufacturing economies. The company seeks to operate cost-effectively and on a large scale.

PV cells and modules with high conversion efficiencies are manufactured. Conversion efficiency rates measure the ability of PV products to convert sunlight into electricity. As of December 31, 2010, the average conversion efficiency rates of monocrystalline and multicrystalline silicon PV cells were 17.9% and 15.9%.

An international R&D team of leading solar PV scientists combined with China-based design, development and manufacturing facilities provide several competitive advantages, including access to low-cost engineering expertise, skilled labor and facilities. Leverages cost advantages by optimizing the balance between automation and manual operations in manufacturing processes, which lowers operating costs and capital expenditures and enables expanding manufacturing capacity in a cost-effective manner.

Manufacturers continuously evaluate and adjust a combination of automated and manual operations. Innovation in manufacturing processes is used to optimize the cost structure of crystalline solar panels while improving manufacturing yields and quality. In 2010, significantly increased aggregate manufacturing capacity was achieved by a number of vendors to meet strong global demand.



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Companies in some cases were able to achieve adding 500 MW of silicon ingot and wafer capacity. Annualized aggregate PV cell manufacturing capacity reached 1,800 MW per annum for vendors.

The worldwide demand for energy is steadily increasing. Demand for energy is doubling every 15 years. The major effort is to sustain growth in the electricity supply without causing irreversible harm to the environment. Solar energy has rapidly grown as a clean, renewable alternative to limited fossil fuels. Recognition of the need to reduce reliance on coal and fossil fuels is driving interest in solar energy.

Growth of solar markets will depend on continued investment in energy infrastructure by governments. When you think about it, there is no better investment government can make than in achieving development of low cost, reliable solar energy. This availability of low cost energy is what makes an economy hum. Some governments are sure to recognize these issues and make the investment, others will not.

According to Susan Eustis, lead author of the study, "Crystalline solar markets are expected to have continued significant growth. The approach of grid parity worldwide is in sight, many areas have achieve grid parity now over the 25 useful life of the crystalline solar panels. Dynamic growth is anticipated to continue."

Crystalline solar panel markets at \$28.3 billion in 2010 are set to grow to \$118.4 billion by 2017.

WinterGreen Research is an independent research organization funded by the sale of market research studies all over the world and by the implementation of ROI models that are used to calculate the total cost of ownership of equipment, services, and software. The company has 35 distributors worldwide, including Global Information Info Shop, Market Research.com, Research and Markets, Bloomberg, and Thompson Financial.



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