

Solar Energy Technology -- Markets Reach \$338.2 Billion By 2017

LEXINGTON, Massachusetts (August 1, 2011) – WinterGreen Research announces that it has a new study on Solar Panel and System Market Shares and Forecasts, Worldwide, 2011-2017. The 2011 study has 1,092 pages, 334 tables and figures. Solar energy units re evolving more sophisticated technology that works. 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.

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The need to reduce reliance on coal and fossil fuels is intuitive. The science agrees -- climate change is a reality. Government priorities are changing. The military robots have brought a dramatic shift in the nature of combat, lowering the cost of military engagement. Many combat situations are engagements against bad guys, not nation against nation.



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There is no better place for a country to invest than in providing tax credits for solar energy. Assuming that the political framework is reliable, that companies and customers have the planning security they need, and that the demand situation stabilizes once again, solar market growth will accelerate. Solar energy makes electric vehicles possible. The auto industry drives the economy. As people buy electric vehicles, they will keep their existing vehicles and drive them less. They will plug the vehicles into parking meters on a street or at work, and recharge the electric vehicle at home from a bank of batteries located beside the home.

Change is a single constant in the solar industry. Changes in customer requirements result in new and more demanding technologies, product specifications and sizes, and manufacturing processes.

The ability to remain competitive depends upon the ability to develop technologically advanced products and processes. What better investment in infrastructure on the part of a government than solar power? Cheap energy promises to provide water, cheap manufacturing, electric vehicles, all sorts of things more useful than a war that the government might alternatively spend its money on.

There are three main areas of solar technology: crystalline types are suitable for colder temperatures at high latitudes, thin film types and concentrating solar technology. The largest market for photovoltaics is for large scale utility systems connected to the electrical grid.

There are 150 solar manufacturers with measurable market shares in some region. Solar markets are significant with 16,469 solar panel manufacturers. This is by far the largest number of viable, functioning companies in any market segment. This many companies participating in the market mean there is enormous, ongoing investment in new technologies. The competitive situation bodes well for market growth, with solar energy complimented by wind and stationary fuel cells poised to become virtually the only systems that deliver energy for the world.

Global production of photovoltaic cells and modules in 2009 was 9.2 GW gigawatts. In 2010, a tremendous growth of solar PV cell shipments increased the solar PV cell market shipments to 16.6GW. The top ten manufacturers accounted for 67% of this total.



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Solar energy is headed toward becoming the only viable energy source, complimented by wind and some fossil fuels and the nuclear industry in China. Solar energy, now at less than 1% of world electrical generation, will quickly go to 92% of what is used as a source to generate electricity. The speed of adoption of solar energy and the penetrations will rival or exceed the speed of adoption and penetrations of cell phones. The same factors are in play, relatively low cost local units, battery power mobility supported, and availability to everyone at an affordable price.

As electric vehicles come on-stream for use in short distance travel, they complement the internal combustion vehicles used to move longer distances. The use of electricity will extend support of travel of short distances by electric vehicles, vastly increasing the quantity of electricity generated. Electricity for vehicles will be distributed in two ways, through parking meter type posts in garages and on streets, and from hardened boxes in a yard or parking facility that contain many thin film batteries with high energy density. Vehicle fuel from solar energy is what provides the quickest payback for solar panels.

Markets at \$32.1 billion in 2010 are set to grow to \$338.2 billion by 2017, reaching \$ 1 trillion sometime in the middle of 2021.

Growth is patchy by region, with investment ebbing and waning regionally, but cumulatively showing a rapid pace of adoption of solar energy as technologies continue to evolve to exceed grid parity by a goodly margin. The combination of attractive technology and government subsidies will create a thriving solar energy business.

The holy grail for the solar industry has been grid parity. Grid parity has been reached in every part of the world if solar systems are looked at over the 25 year useful life of the systems. Solar power has achieved recognized grid parity in some areas and is approaching recognized grid parity in other areas. According to Susan Eustis, the principal author of the study, "The concentrated solar power adventure is like the old railroads, those who get there first with all the will be the winners. Large fortunes are to be made in concentrated solar power CSP." Solar energy provides energy for lighting and power, for data centers, for electric vehicles, for transportation, and to desalinate water, making much more of the earth's land mass usable.



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Keywords:, Commercial Solar Panels, Multicrystalline Module, Solar Utility, Residential Solar, Consumer Solar, Smart Grid, Solar Panel Technologies, Thin Film Solar Cells, Amorphous Silicon, Thin Film Solar Cells Cadmium Telluride, Thin Film Solar Cells CIGS, (Copper Indium Gallium Selenide), Copper-Indium-Gallium-Diselenide, Conversion Efficiency Confirmation From NREL, Thin-Film On Glass Substrate, Solar CIGS On A Polymeric, Plastic Substrate, Solar Monolithic Integration On Glass, Substrate, Solar Modules Cadmium Telluride (CdTe), Semiconductor Material, CIGS Photovoltaic Effect, Crystalline Silicon Indirect Band-Gap Semiconductor, Solar Thin Film Substrates, Gettering in Large-Grained Thin Polycrystalline, Silicon Films, Glass Substrate, Thin-Film Panels, Nanosolar, HelioVolt, MiaSole, First Solar, Photovoltaic Technologies, Solar Shading, Third-Generation Thin-Film Solar Applications, Flexible Glass Solar Panels, Polysilicon Producers, Solar Inverter, Solar Micro Inverter, Solar Panel Electricity Solutions, Solar Energy, Single Crystal Solar, Polycrystalline, Multicrystalline, Thin Film Panels, Sunlight Intensity, Micromorph Modules, BIPV Canopy Systems, CIGs, Solar Regional Market, Concentrated Solar Thermal, Concentrated Solar Power CSP, Photovoltaic Conversion Of Sun Light, Photovoltaic Solar Panel, Solar Localization, Low Iron Glass, <http://wintergreenresearch.com/reports/solar.html>www.wintergreenresearch.com, Photovoltaic Solar Panel, <http://wintergreenresearch.com/reports/solar.html>

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